CERTIFICADO DE ENSAYO

TEST CERTIFICATE

Nº: 28859CEM.001

Producto	:	**SISTEMA DE TELÉFONOS AUTOALIMENTADOS BATTERYLESS TIPO AU-MAG.**
Product	:	**SELFPOWERED TELEPHONE SYSTEM MODEL AU-MAG.**
Marca comercial **Trade Mark**	:	**SCM**
Modelo /Tipo Ref. **Model / Type Ref.**	: :	**PROTOTIPO** **PROTOTYPE**
Fabricante **Manufacturer**	:	**SCM SISTEMAS**
Peticionario **Tested on request of**	:	**SCM SISTEMAS**
Otros datos de identificación - n/s **Full identification of the product - s/n**	: :	**Ver apartado "utilización de las muestras" del informe de ensayos** **See section "usage of samples" of the test report**
Norma(s) de referencia **Standard(s)**	:	**Germanischer Lloyd Edition 2003.** **EMISIÓN ELECTROMAGNÉTICA / EM Emission.** **Sobre la muestra M/01 / On the sample S/01:** **-CISPR 16-1 (1993):** Emisión radiada / Radiated emission. **Sobre las muestras M/06 & 13 / On the samples S/06 & 13:** **-CISPR 16-1 (1993):** Emisión conducida / Conducted emission. **INMUNIDAD ELECTROMAGNÉTICA / EM Immunity.** **Sobre la muestra M/01 / On the sample S/01:** **-EN 61000-4-3 (2006):** Campo radiado EM de RF / EM radiated field of RF. **Sobre la muestra M/06 / On the sample S/06:** **-EN 61000-4-6 (2007):** RF en modo común / RF common mode. **Sobre la muestra M/13 / On the sample S/13:** **-EN 61000-4-4 (2004);** Ráfagas de transitorios rápidos / EFT burst. **Sobre la muestra M/14 / On the sample S/14:** **-EN 61000-4-2 (1995) / A1 (1998) / A2 (2001):** Descarga electrostática / ESD; **-EN 61000-4-5 (2006);** Ondas de choque / Surges.
Certificado basado en el informe **Test certificate based on the test report**	:	**Nº. 28859IEM.001 DE FECHA / dated: 2009-04-16**
Resultado **Summary**	:	**Ver sumario en el informe 28859IEM.001** **See sumary on the test report 28859IEM.001**

AT4 wireless es un laboratorio de ensayo acreditado por la Entidad Nacional de Acreditación (ENAC), para los ensayos indicados en el Certificado Nº 51/LE203.

AT4 wireless is a testing laboratory accredited by ENAC (Entidad Nacional de Acreditación) to carry out the tests described in the Certificate Nº 51/LE203.

AT4 wireless es un laboratorio de ensayo competente para la realización de los ensayos objeto del presente informe.

AT4 wireless is a testing laboratory competent to carry out the tests described in the report.

Nota: Este certificado de ensayo sólo es aplicable a los objetos sometidos a ensayo cuya identificación se recoge en el informe en que se basa, ensayados en el modo y fecha(s) declaradas del mismo informe. Por tanto, no implica una certificación de la producción.

Note: This test certificate is only applicable to the unit(s) of the product submitted, shown in the reference report, tested and used in the mode and date shown in the mentioned test report. It does not imply a certification of the production.

Málaga

Responsable EMC
EMC Manager

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ENAC ENSAYOS Nº 51/LE203

TEST REPORT

REFERENCE STANDARD: Germanischer Lloyd. Edición 2003.

Rules for classification and Construction.

VI Additional Rules and Guidelines.

7 Guidelines for the performance of Type Approvals.

2 Test Requirements for Electrical / Electronic Equipment and Systems.

NIE ..... :	28859REM.001
Approved by (name / position & signature) ..... :	Rafael López EMC Manager
Elaboration date ..... :	2009-07-21
Identification of item tested ..... :	BATTERYLESS AUTOFED TELEPHONE SYSTEM TYPE AU-MAG
Trademark ..... :	SCM
Model and/or type reference ..... :	PROTOTYPE
Serial number ..... :	See "Usage of samples"
Description ..... :	It was sent two equipments composed by: 1st Delivery: Auto-fed telephone model AU-MAG-A, Serial number 0026/09. Auto-fed telephone model AU-MAG, Serial number 0073/09. Auto-fed telephone guest in a watertight box model AU-CJ-MAG Serial number 0037/09. Amplifier for auto-fed telephones model AU-ACM-A, Serial number 0022/09. Earphones for amplifier model ACM, Serial number 0022/09. 2nd Delivery: Auto-fed telephone model AU-MAG-A without serial number. Auto-fed telephone model AU-MAG without serial number.
Applicant ..... :	SCM SISTEMAS
Address ..... :	C/ Libertad 14-2a P.C.: 33206. Gijón. Asturias. Spain
CIF/NIF/Passport ..... :	B-33826058
Contact person ..... :	Guillermo Florez / Luis Calleja
Telephone / Fax ..... :	+34 985 356 263 / +34 985 348 083
e-mail: ..... :	guillermo@scmsistemas.com

Test samples supplier ..... :	SCM SISTEMAS
Address ..... :	C/ Libertad 14-2a
	P.C.: 33206. Gijón. Asturias.
	Spain
CIF/NIF/Passport ..... :	B-33826058
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	Spain
CIF/NIF/Passport ..... :	B-33826058
Telephone / Fax ..... :	+34 985 356 263 / +34 985 348 083
Standard ..... :	Germanischer Lloyd
Test Method requested ..... :	PEEM001; PEEM002; PEEM009; PEEM010; PEEM012; PEEM013; PEEM075.
Non-standardized test method ..... :	N/A
Report template No. ..... :	FDT08_11

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Competences and guarantees

AT4 wireless is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 203.

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance programme for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the AT4 wireless internal document PODT000.

Usage of samples

Samples undergoing test have been selected by: SCM SISTEMAS

Sample S/01 is composed of the following elements:

Control Nº	Description	Manufacturer	Model	Serial Nº	Date of reception
28859/06	Auto-fed telephone nº 3	SCM SISTEMAS	AU-CJ-MAG	0037/09	2009-01-27
28859/07	Earphones with microphone	SCM SISTEMAS	ACM	0022/09	2009-01-27
28859/08	Auto-fed telephone nº 2	SCM SISTEMAS	AU-MAG-A	0026/09	2009-01-27
28859/09	Auto-fed telephone nº 1	SCM SISTEMAS	AU-MAG	0073/09	2009-01-27

The sample S/02 is a new sample sent by the applicant composed by:

Control Nº	Description	Manufacturer	Model	Serial Nº	Date of reception
28859/06	Auto-fed telephone nº 3	SCM SISTEMAS	AU-CJ-MAG	0037/09	2009-01-27
28859/07	Earphones with microphone	SCM SISTEMAS	ACM	0022/09	2009-01-27
28859/24	Auto-fed telephone	SCM SISTEMAS	AU-MAG-A	---	2009-02-11
28859/25	Auto-fed telephone	SCM SISTEMAS	AU-MAG	---	2009-02-11

The sample S/06 is the sample S/02 removing the earphones (element 07), the microphone and the amplifier, only is left the central box and the two auto-fed telephones.

The sample S/13 is the sample S/06 disconnecting the alarm light, adding a MURAT filter model BMX022-01 in the lamp power supply input & another equal filter in the principal general mains.

The sample S/14 is the sample S/13 adding another filter in the power supply (SCHAFFNER RN112-4/02) and four varistors WÜRTH 820 55 400 1, one on the filter input, another one on the filter output, another one between the positive wire and ground in the filter output and the last between the negative wire of the filter output and ground.

Testing period

The performed test started on 2009-01-27 and finished on 2009-03-20..

The tests have been performed at AT4 wireless.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 20 % Max. = 80 %
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω

In the semianechoic chamber (21 meters x 11 meters x 8 meters), the following limits were not exceeded during the test.

Temperature	Min. = 15 ºC Max. = 30 ºC
Relative humidity	Min. = 45 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω
Normal site attenuation (NSA)	< ±4 dB at 10 m distance between item under test and receiver antenna, (30 MHz to 1000 MHz)
Field homogeneity	More than 75% of illuminated surface is between 0 and 6 dB (26 MHz to 1000 MHz).

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 30 ºC
Relative humidity	Min. = 45 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 0,5 Ω

Summary

Considering the results of the performed test according to standard **Germanischer Lloyd, Rules for Classification and Construction, VI Additional Rules and Guidelines, 7 Guidelines for the Performance of Type Approvals, 2 Test Requirements for Electrical / Electronic Equipment and Systems**, the iteS/s under test is/are **IN COMPLIANCE** with the requested specifications specified in the standard.

NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".

Remarks and comments

The tests have been realized by the technical personnel: José Carlos Luque, Antonio Ruiz, José Manuel Márquez, José Manuel Gómez & Margarita Haro.

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 150 kHz to 30 MHz is I = ± 3.73 dB for quasi-peak measurements, I = ± 3.61 dB for peak measurements (k = 2).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is I = ± 5.79 dB for quasi-peak measurements, I = ± 5.71 dB for peak measurements (k = 2).

Testing veredicts

Not applicable	:	NA
Pass	:	P
Fail	:	F
Not measured	:	NM

APPENDIX A

Test Result

APPENDIX A CONTENT:

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DESCRIPTION OF THE OPERATION MODES

The operation modes described in this paragraph constitute a functionality of the sample under test for himself. Every operation mode takes a failure criteria for the immunity test that they were applying to it and a monitoring to guarantee performance of the same ones.

In the following table appears the operation modes used by the samples tested to that it refers the present test report.

OPERATION MODE	DESCRIPTION
OM#01	EUT ON. All the telephones picked up and earphones with microphone fed. All in communication mode. Power supply input for earphones: 24 Vdc.
OM#03	EUT ON. Siren and call alarm light actives.

FAILS CRITERIA FOR IMMUNITY TEST

Fail Criteria A:

The apparatus or sub-system shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus or sub-system is used as intended.

Fail Criteria B:

The apparatus or sub-system shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus or sub-system is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed.

Fail criteria C:

Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls or by a operation specified on the user manual.

MONITORING FOR IMMUNITY TEST

For every operation mode applied to the EUT it's realizes a monitoring associated with each one of the immunity test, in accordance with the following table.

OPERATION MODE	CONTINUOUS PHENOMENA MONITORING	TRANSIENT PHENOMENA MONITORING
OM#01	A conversation is reproduced by the microphone of one of the telephones and there is verified that it is audible for the earphone of the other one terminal.	A conversation is reproduced by the microphone of one of the telephones and there is verified that it is audible for the earphone of the other one terminal.
OM#03	By means of a CCTV system it was monitored that the EUT remains in the selected mode.	By means of a CCTV system it was monitored that the EUT remains in the selected mode.

CONTINUOUS CONDUCTED EMISSION ON POWER LEADS

LIMITS:	Product standard :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Test standard :	CISPR 16-1 (1993), CISPR 16-2 (1996)

Emplacement	Frequency ranges	Limits
Bridge and open deck zone. - EMC 1	10 kHz – 150 kHz	96 dBµV – 50 dBµV
	150 kHz – 350 kHz	60 dBµV – 50 dBµV
	350 kHz – 30 MHz	50 dBµV
Zone of general power distribution - EMC 2	10 kHz – 150 kHz	120 dBµV – 69 dBµV
	150 kHz – 500 kHz	79 dBµV
	500 kHz – 30 MHz	73 dBµV

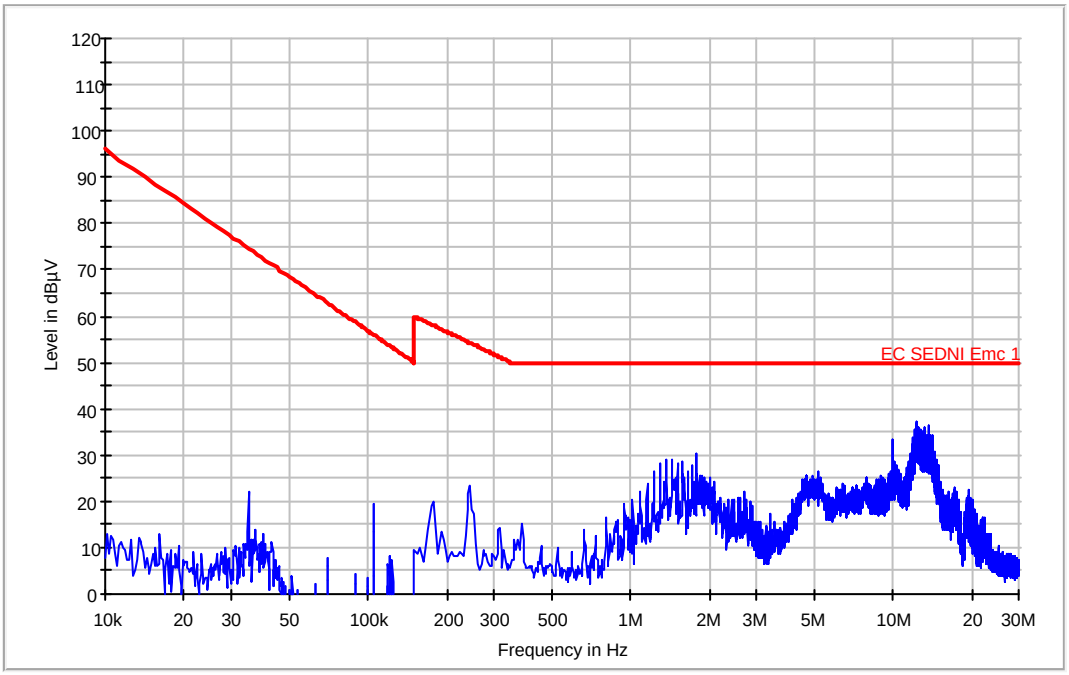
TESTED SAMPLES:	S/06 & 13
TESTED OPERATION MODES:	OM#01 & 03
TEST RESULTS :	CCmmnnhh: CC, Conducted Condition; mm: Sample number; nn: Operation mode; hh: wire

CCmmnnhh	Description	Result
CC0601PO	Positive wire noise.	P
CC0601NE	Negative wire noise	P
CC1303PO	Positive wire noise.	P
CC1303NE	Negative wire noise	P

Continuous Conducted emission : CC0601PO	Detector : Peak / Average / Cuasi-peak

Project: 28859Ciem001
Company: SCM Sistemas
Sample: S/06
Operation Mode: OM#01
Date: 2009-03-19 19:36
Setup: EMI conducted
Mode: EUT ON. Phones In communication mode. Positive wire noise.

EC SEDNI 10kHz-30MHz



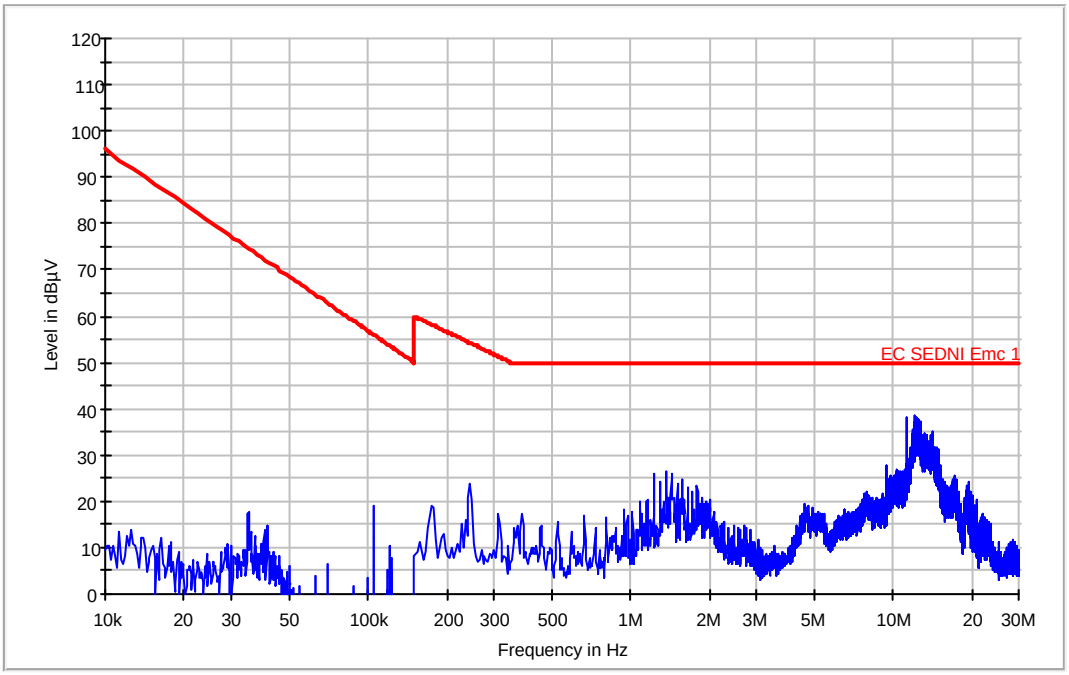
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)
12.090000	35.4
12.194000	35.7
12.230000	36.7
12.266000	37.1
12.302000	35.2
12.438000	35.3
12.510000	35.8
12.514000	35.5
12.794000	35.3
13.006000	35.0
13.074000	35.8
13.638000	36.2

Continuous Conducted emission : CC0601NE	Detector : Peak / Average / Cuasi-peak

Project: 28859Ciem001
Company: SCM Sistemas
Sample: S/06
Operation Mode: OM#01
Date: 2009-03-19 19:40
Setup: EMI conducted
Mode: EUT ON. Phones in communication modeNegative wire noise.

EC SEDNI 10kHz-30MHz



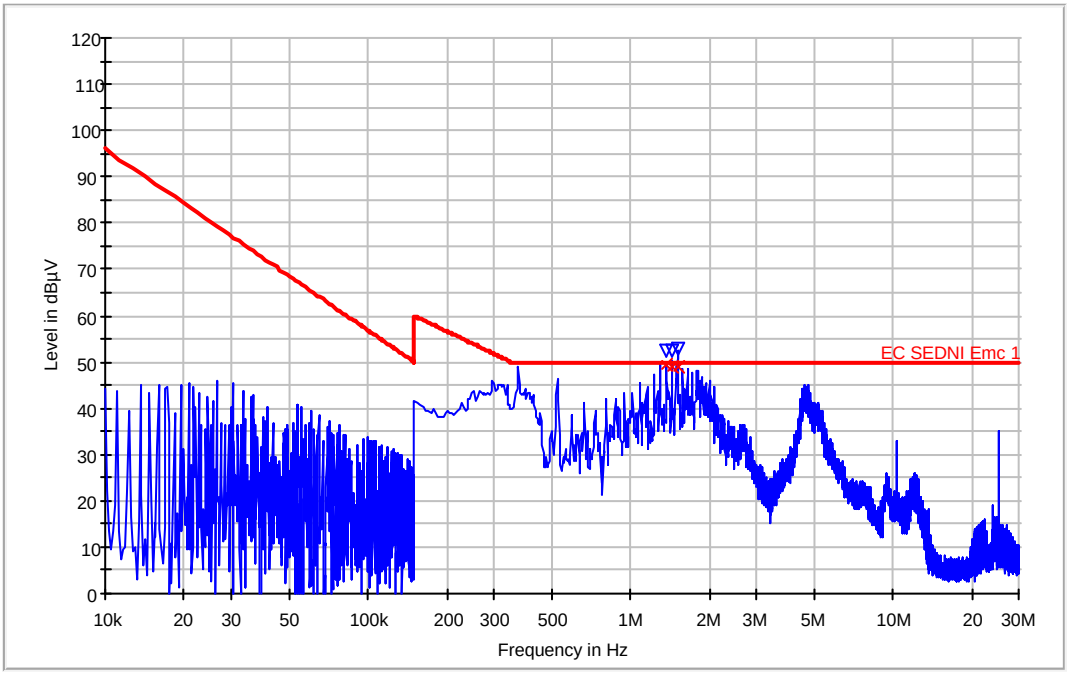
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)
11.250000	38.2
12.086000	37.0
12.090000	37.4
12.134000	37.3
12.138000	38.4
12.158000	36.6
12.230000	37.9
12.254000	37.3
12.302000	36.9
12.442000	36.6
12.466000	37.7
12.654000	37.4

Continuous Conducted emission : CC1303PO	Detector : Peak / Average / Cuasi-peak

Project: 28859Ciem001
Company: SCM SISTEMAS
Sample: S/13
Operation Mode: OM#03
Date: 2009-05-06 13:59
Setup: EMI conducted
Mode: EUT ON. Siren and alarm actived. Positive wire noise.

EC SEDNI 10kHz-30MHz



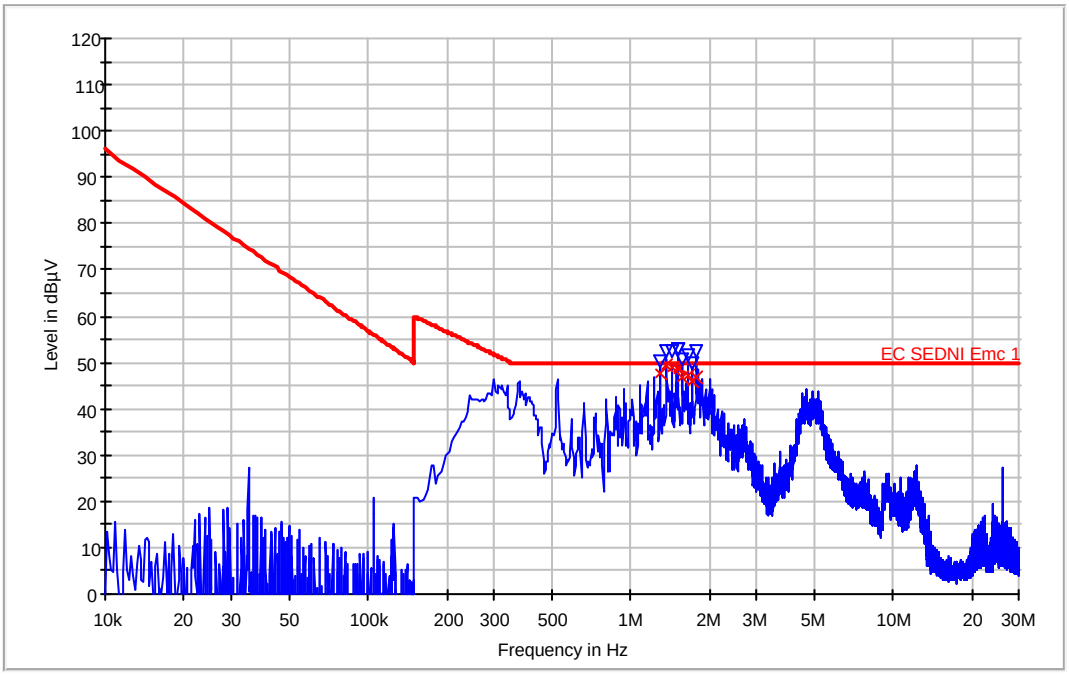
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Comment
0.526000	46.2	
1.226000	47.2	
1.298000	49.4	
1.366000	49.8	
1.438000	50.3	
1.510000	52.2	
1.578000	48.4	
1.646000	48.6	
1.718000	47.8	
1.794000	48.1	
1.858000	46.6	
2.006000	45.7	

Continuous Conducted emission : CC1303NE	Detector : Peak / Average / Cuasi-peak

Project:	28859Ciem001
Company:	SCM SISTEMAS
Sample:	S/13
Operation Mode:	OM#03
Date:	2009-05-06 13:57
Setup:	EMI conducted
Mode:	EUT ON. Siren and alarm actived. Negative wire noise.

EC SEDNI 10kHz-30MHz



Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Comment
0.526000	46.3	
1.226000	47.0	
1.298000	48.9	
1.370000	50.5	
1.438000	49.8	
1.510000	51.4	
1.578000	50.0	
1.646000	49.7	
1.718000	48.8	
1.786000	51.2	
1.874000	46.3	
2.006000	46.5	

RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE.

LIMITS:	Product standard :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Test standard :	CISPR 16-1 (1993), CISPR 16-2 (1996)

Emplacement	**Frequency ranges**	**Limits**
Bridge and open deck zone. - EMC 1	150 kHz – 300 kHz	80 dBµV/m – 52 dBµV/m
	300 kHz – 30 MHz	52 dBµV/m – 34 dBµV/m
	30 MHz – 2 GHz	54 dBµV/m
	except for: 156 MHz – 165 MHz	24 dBµV/m
Zone of general power distribution - EMC 2	150 kHz – 30 MHz	80 dBµV/m – 50 dBµV/m
	30 kHz – 100 MHz	50 dBµV/m – 54 dBµV/m
	100 MHz – 2 GHz	54 dBµV/m
	except for: 156 MHz – 165 MHz	24 dBµV/m

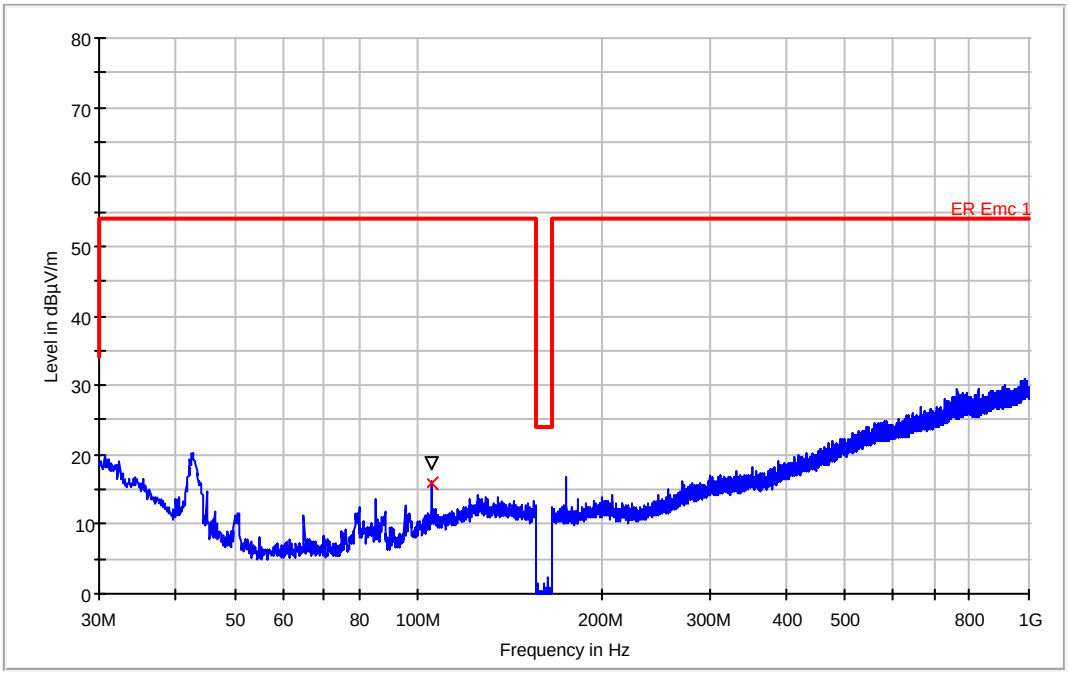
TESTED SAMPLES:	S/01
TESTED OPERATION MODES:	OM#01
TEST RESULTS :	**CR**mmnn: CR, Condición de Radiación; mm: Sample number; nn: Operation mode.

CRmmnn	**Description**	**Result**
CR0101	30 MHz - 1000 MHz	P
CR0101	150 kHz - 30 MHz X Axis	P
CR0101	150 kHz - 30 MHz Y Axis	P
CR0101	150 kHz - 30 MHz Z Axis	P
CR0101	1 GHz - 2 GHz Horizontal Polarization	P
CR0101	1 GHz - 2 GHz Vertical Polarization	P

Radiated Emission: CR0101 30-1000 MHz

Project:	28859Ciem.001
Company:	SCM Sistemas
Sample:	S/01
Operation Mode:	OM#01
Date:	2009-01-27 17:17
Setup:	EMI radiated
Mode:	EUT ON. In communication mode

ESIB CISPR 16-1 30-1000MHz Bilog hibrid AMP2193 3m



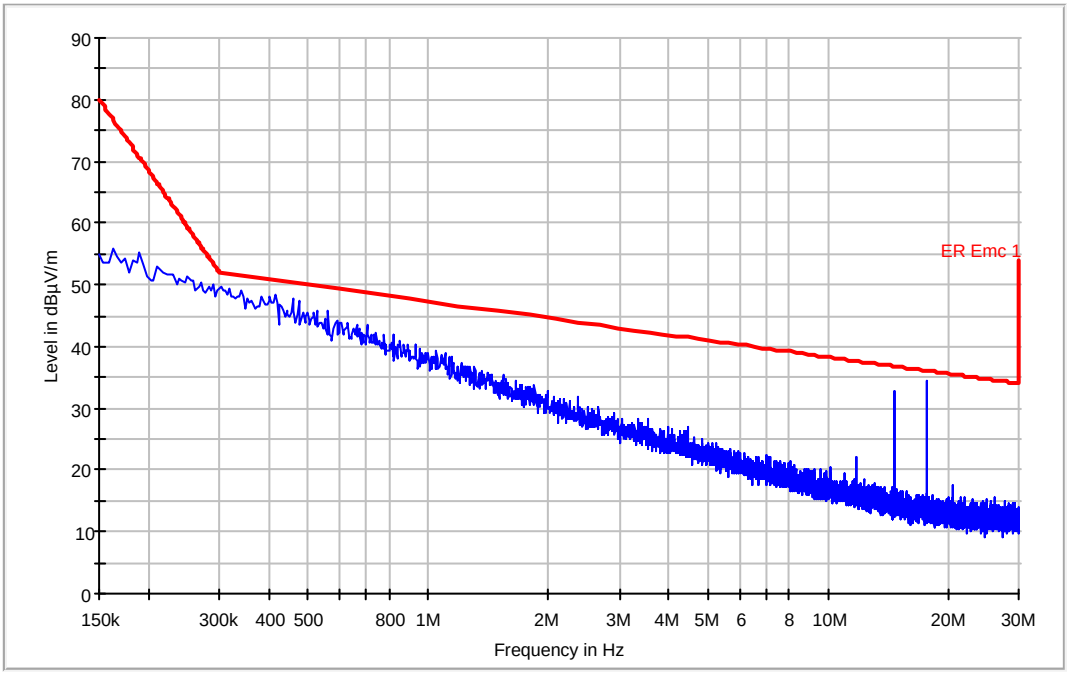
Maximized

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)
105.011022	15.8	18.9	113.00	V	111.0

Radiated Emission: CR0101 150 kHz-30 MHz X axis

Project:	28859Ciem.001
Company:	SCM Sistemas
Sample:	S/01
Operation Mode:	OM#01
Date:	2009-01-27 20:45
Setup:	EMI radiated
Mode:	EUT ON. In communication mode X axis.

ER CISPR 16-1 150k-30MHz (H field)



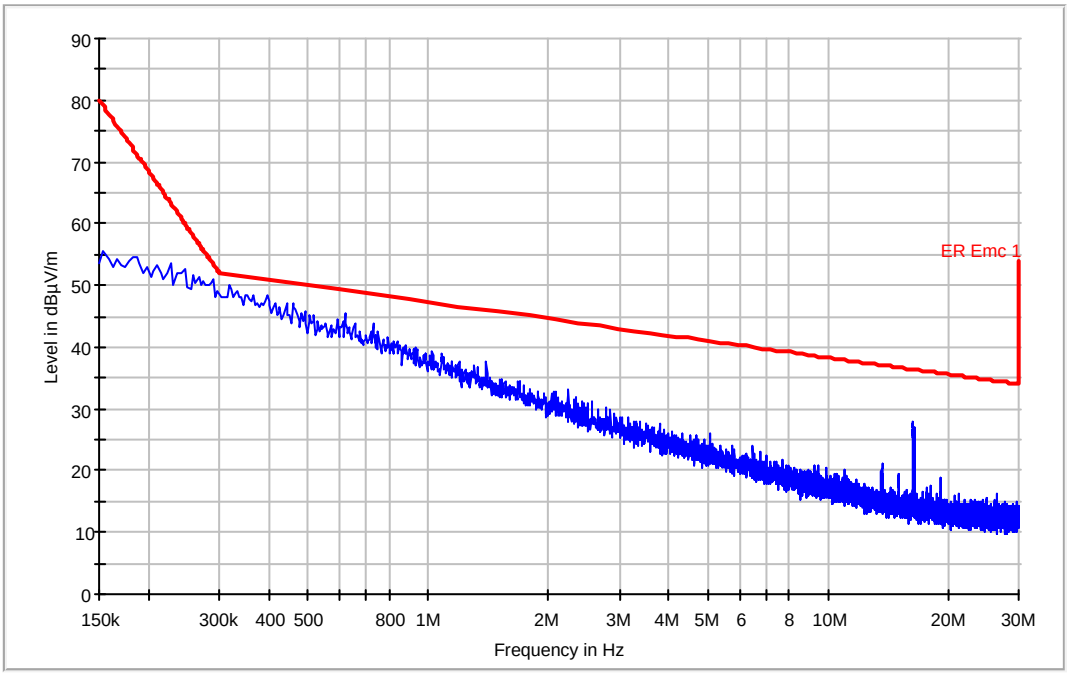
DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)
0.162000	55.7
11.750000	22.0
14.690000	32.7
17.630000	34.6
20.566000	17.5
26.206000	15.6

Radiated Emission: **CR0101 150 kHz-30 MHz Y axis**

Project:	28859Ciem.001
Company:	SCM Sistemas
Sample:	S/01
Operation Mode:	OM#01
Date:	2009-01-27 20:44
Setup:	EMI radiated
Mode:	EUT ON. In communication mode Y axis.

ER CISPR 16-1 150k-30MHz (H field)



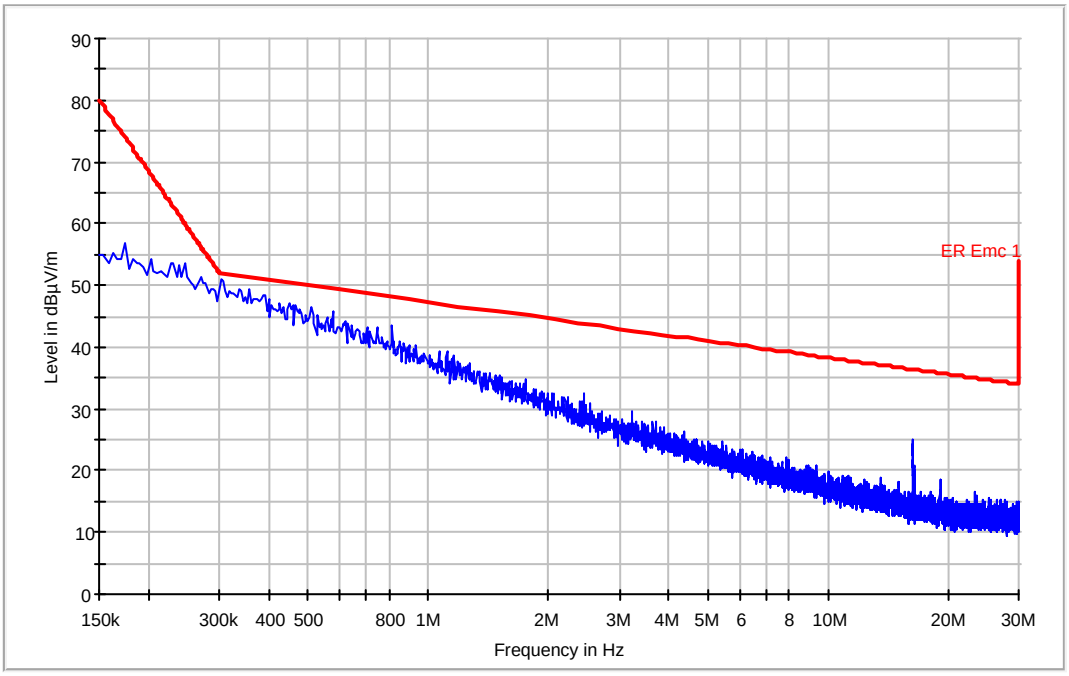
DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)
0.154000	55.6
16.322000	27.8

Radiated Emission: **CR0101 150 kHz-30 MHz Z axis**

Project:	28859Ciem.001
Company:	SCM Sistemas
Sample:	S/01
Operation Mode:	OM#01
Date:	2009-01-27 20:50
Setup:	EMI radiated
Mode:	EUT ON. In communication mode Z axis.

ER CISPR 16-1 150k-30MHz (H field)



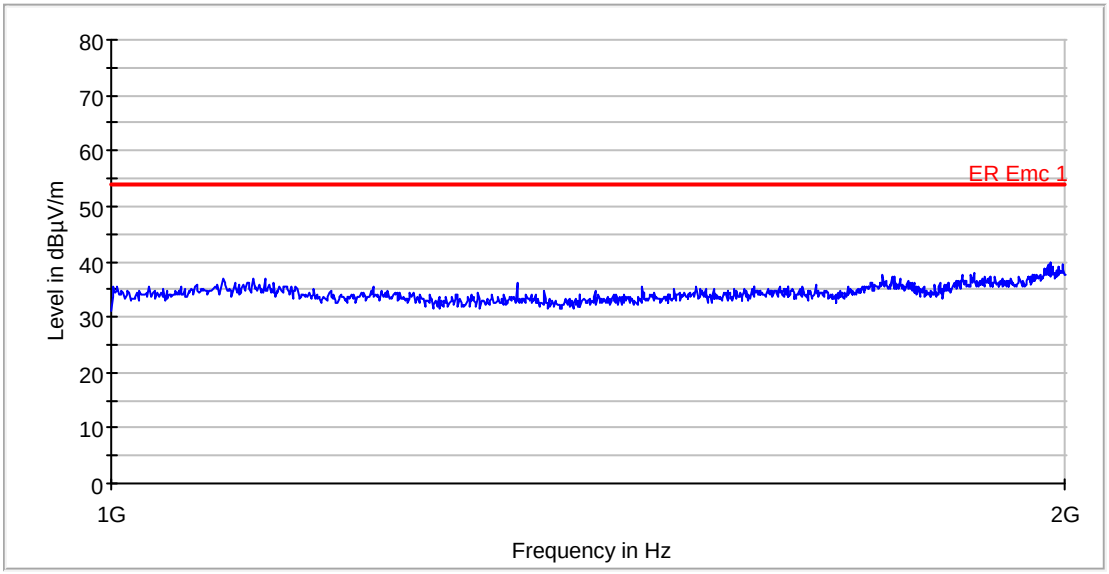
DataReduction Detector1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)
0.174000	56.8
16.318000	24.9

Radiated Emission: **CR0101 1 GHz-2 GHz Horizontal Polarization**

Project:	28859CIEM.001
Company:	SCM Sistemas
Sample:	S/01
Operation Mode:	OM#01
Date:	2009-01-27 19:58
Setup:	EMI radiated
Mode:	EUT ON. In communication mode Horizontal polarization.

ER CISPR 16-1 1-2GHz



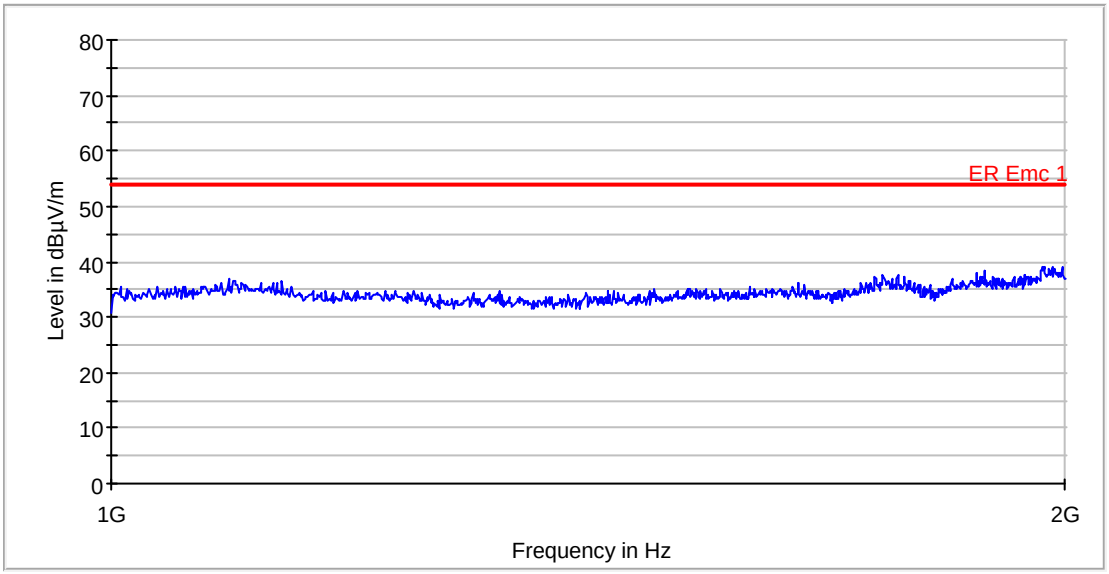
Maximum PK

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)	Polarity
1976.000000	39.5	H
1980.000000	39.6	H
1997.000000	39.3	H

Radiated Emission: **CR0101 1 GHz-2 GHz Vertical Polarization**

Project:	28859CIEM.001
Company:	SCM Sistemas
Sample:	S/01
Operation Mode:	OM#01
Date:	2009-01-27 19:54
Setup:	EMI radiated
Mode:	EUT ON. In communication mode Vertical polarization.

ER CISPR 16-1 1-2GHz



Maximum PK

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)	Polarity
1971.000000	39.2	V
1982.000000	39.1	V
1996.000000	39.2	V

RADIATED RF ELECTROMAGNETIC FIELD IMMUNITY TEST

LIMITS:	Product standard :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Test standard :	EN 61000-4-3 (2006)

Severity level	3
Frequency range	80 MHz a 2 GHz
Steep	< 1,5 x 10^{-3} dec/s (1% / 3s)
Field intensity	10 V/m
Modulation	AM 80 % 1000 Hz Senoidal
Polarization	Vertical and Horizontal

TESTED SAMPLES:	S/01
TESTED OPERATION MODES:	OM#01
FAIL CRITERIA AND MONITORING:	A
ZONES/COUPLING CABLES (ACPL):	

ACPL	**DESCRIPTION**
1	EUT frontal
2	EUT rear side
3	EUT left side
4	EUT right side

TEST RESULTS :	

ACPL	**RANGES**	**S/**	**OM#**	**COMMENTS**	**RESULT**
1	A	01	01	Ok, no fails detected	P
2	A	01	01	Ok, no fails detected	P
3	A	01	01	Ok, no fails detected	P
4	A	01	01	Ok, no fails detected	P

IMMUNITY TO HIG FREQUENCY CONDUCTED DISTURBANCES

LIMITS:	Product standard :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Test standard :	EN 61000-4-6 (2007)

Severity level	2
Coupling	Line / Ground
Carrier (Open circuit)	3 V_{eff}[1]
A Range	150 kHz – 5 MHz
B Range	5 MHz – 80 MHz
C Range	2 MHz, 3 MHz, 4 MHz, 6,2 MHz, 8,2 MHz, 12,6 MHz, 16,5 MHz, 18,8 MHz, 22 MHz & 25 MHz.
D Range	50 Hz – 10 KHz
Modulation	AM 80% a 1000 Hz Senoidal[2]
Sweep speed	< 1,5 x 10^{-3} dec/s (1% / 3s)

[1] For equipment installed on the bridge deck and deck zone the tests levels must be increase to 10 V_{eff} for random frequencies according with IEC 60945 in 2 MHz, 3 MHz, 4 MHz, 6,2 MHz, 8,2 MHz, 12,6 MHz, 16,5 MHz, 18,8 MHz, 22 MHz & 25 MHz.

[2] For test of equipments and input signals with a modulation frequency of 1000 Hz is necessary to choose a modulation frequency of 400Hz.

TESTED SAMPLES:	S/06
TESTED OPERATION MODES:	OM#01
FAIL CRITERIA AND MONITORING:	A
ZONES/COUPLING CABLES (ACPL):	

ACPL	**DESCRIPTION**
5	Telephones cables 1 (E/24). Wires 4-6-7 y 1 (Telephone 1 direction).
6	Telephones cables 1 (E/24). Wires 2-5-19 y 20 (Telephone direction).
7	Telephone cable 1 (E/24). Wire 7.
8	Telephone cable 3 (E/06). Wires 1-2-7-20.
9	Telephone cable 3 (E/06). Wires 3-4-5-6.
10	Telephone cable 3 (E/06). Wire 19.
11	Telephone cable 3 (E/06). Positive and negative wires of auxiliary DC power supply.

TEST RESULTS :	(See on next page)

TEST RESULTS :	

ACPL	RANGE	S/	OM#	COMMENTS	RESULT
5	A	06	01	It is possible to hear an interference tone during almost the whole test, the communication is correct during the test.	P
5	B	06	01	It is possible to hear an interference tone during almost the whole test, the communication is correct during the test.	P
5	C	06	01	It is possible to hear an interference tone during almost the whole test, the communication is correct during the test.	P
6	A	06	01	It is possible to hear an interference tone from 150 kHz to 500 MHz.	P
6	B	06	01	Ok, no fails detected.	P
6	C	06	01	Ok, no fails detected.	P
7	A	06	01	It is possible to hear an interference tone from 150 kHz to 600 MHz.	P
7	B	06	01	Ok, no fails detected.	P
7	C	06	01	Ok, no fails detected.	P
8	A	06	01	It is possible to hear an interference tone during all the test, specially in 25 MHz.	P
8	B	06	01	It is possible to hear an interference tone from 150 kHz to 650 MHz.	P
8	C	06	01	Ok, no fails detected.	P
9	A	06	01	It is possible to hear an interference tone from 150 kHz to 350 MHz.	P
9	B	06	01	It is possible to hear an interference tone from 27 MHz to 29 MHz.	P
9	C	06	01	Ok, no fails detected.	P
10	A	06	01	It is possible to hear an interference tone from 150 kHz to 350 MHz.	P
10	B	06	01	Ok, no fails detected.	P
10	C	06	01	It is possible to hear an interference tone in 18,8; 22 & 25 MHz.	P
11	A	06	01	It is possible to hear an interference tone in 18,8; 22 & 25 MHz.	P
11	B	06	01	It is possible to hear an interference tone from 150 kHz to 350 MHz.	P
11	C	06	01	It is possible to hear an interference tone from 1 kHz to 10 kHz.	P

ELECTRICAL FAST TRANSIENT / BURST IMMUNITY TEST

LIMITS:	Product standard :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Test standard :	EN 61000-4-4 (2004)

	Power supply connections (Type 1)	**Data connection, Communications and control (Type 2)**
Severity level	3	
Coupling	Line / Ground	
Test Voltage (Open circuit)	2 kV	1 kV
Polarity	Positive / Negative	
Pulses repetition rate	5 kHz	5 kHz
Voltage Waveform	5 / 50 ns	
Duration	15 ms	
Period	300 ms	
Test duration by polarity and test point	5 Minutes	

TESTED SAMPLES:	S/13
TESTED OPERATION MODES:	OM#01
FAIL CRITERIA AND MONITORING:	B
ZONES/COUPLING CABLES (ACPL):	

ACPL	**DESCRIPTION**	**TYPE**
A	DC power supply line (PO = Positive wire).	1
B	DC power supply line (NE = Negative wire).	1
C	Communications cable of telephone 1	2
D	Communications cable of telephone 2	2

TEST RESULTS :	(See on next page)

TEST RESULTS :	

ACPL	S/	OM#	COMMENTS	RESULT
A	13	01	OK, no fails detected.	P
B	13	01	OK, no fails detected.	P
C	13	01	OK, no fails detected.	P
D	13	01	OK, no fails detected.	P

SURGE IMMUNITY TEST

LIMITS:	Product standard :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Test standard :	EN 61000-4-5 (2006)

	Coupling	
	line / line (Type 1)	line / ground (Tipe 2)
Severity level	2	
Voltage test (open circuit)	0,5 kV	1 kV
Polarity	Positive / Negative	
Voltage Waveform	1,2 / 50 µs	
Repetition rate	max. 1 pulse / minute	
Test duration by polarity and test point	min. 5 pulses / Polarity	

TESTED SAMPLES:	S/14
TESTED OPERATION MODES:	OM#01
FAIL CRITERIA AND MONITORING:	B
ZONES/COUPLING CABLES (ACPL):	

ACPL	**DESCRIPTION**	**TYPE**
A	DC power supply line. Symmetrical: PO→NE	1
B	DC power supply line. Asymmetrical: PO →PE.	2
C	DC power supply line. Asymmetrical: NE →PE.	2

TEST RESULTS :	

ACPL	**S/**	**OM#**	**COMMENTS**	**RESULT**
A	14	01	OK, no fails detected.	P
B	14	01	OK, no fails detected.	P
C	14	01	OK, no fails detected.	P

ELECTROSTATIC DISCHARGE IMMUNITY TEST.

LIMITS:	Product standard :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Test standard :	EN 61000-4-2 (1995) / A1 (1998) / A2 (2001)

	Contact discharge	**Air discharge**
Severity level	3	
Voltage test	6 kV	8 kV
Duration for test point	min. 10 individual discharge by polarity	
Time between individual discharges	min. 1 second	
Waveform parameters - First current peak of the discharge - Raise time - Current at 30 ns - Current at 60 ns	 22,5 A 0,7 a 1 ns 12A 6 A	

TESTED SAMPLES:	S/14
TESTED OPERATION MODES:	OM#01
MONITORING AND FAIL CRITERIA :	B
NUMBER OF DISCHARGES FOR POINT	10
ZONES/COUPLING CABLES (ACPL):	

ACPL	**DESCRIPTION**	**COUPLING TYPE**			
		ICH	**ICV**	**DC**	**DA**
1	Cabinet frontal (Telephone 3)	X			
2	Cabinet rear (Telephone 3)	X			
3	Cabinet right side (Telephone 3)	X			
4	Cabinet left side (Telephone 3)	X			
5	Frontal of telephone 1	X			

6	Rear of telephone 1	X			
7	Right side of telephone 1	X			
8	Left side of telephone 1	X			
9	Frontal enclosure of telephone 2	X			
10	Rear enclosure of telephone 2	X			
11	Right side enclosure of telepnone 2	X			
12	Enclosure screws of telephone 1			X	
13	Enclosure screws of telephone 2			X	
14	Enclosure screws of telephone 3			X	
15	Cabinet screws (Telephone 3)			X	
16	Screws of the cabinet sonorous alarm			X	
17	Screws of the cabinet alarm light			X	
18	Support of the terminal strip			X	
19	Telephone 1 enclosures				X
20	Enclosure of the telephone 1 earphone				X
21	Chanel selector of telephone 1				X
22	Power supply crank of telephone 1				X
23	Spiral cable of telephone 1				X
24	Wall bushing of telephone 1				X
25	Enclosure of telephone 2				X
26	Enclosure of the telephone 2 earphone				X
27	Chanel selector of telephone 2				X
28	Power supply crank of telephone 2				X
29	Spiral cable of telephone 2				X
30	Wall bushing of telephone 2				X
31	Enclosure of telephone 3				X
32	Enclosure of the telephone 3 earphone				X
33	Chanel selector of telephone 3				X
34	Power supply crank of telephone 3				X
35	Spiral cable of telephone 3				X
36	Wall bushing of telephone 3				X

37	Enclosure of the telephone 3 cabinet				X
38	Wall bushing of the telephone 3 cabinet				X
39	Enclosure of the cabinet sonorous alarm				X
40	Enclosure of the cabinet alarm light				X

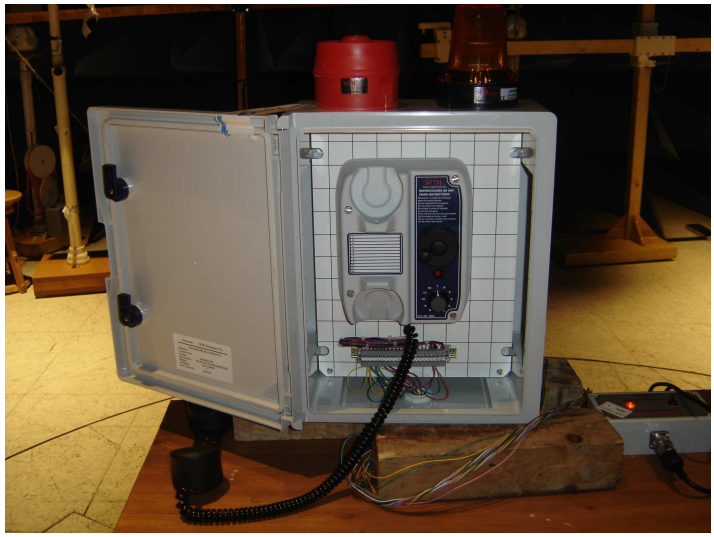
COUPLING RESUME : ICH (Indirect by contact on horizontal plane)
ICV (Indirect by contact on vertical plane), DC (Direct by contact), DA (Direct by air)

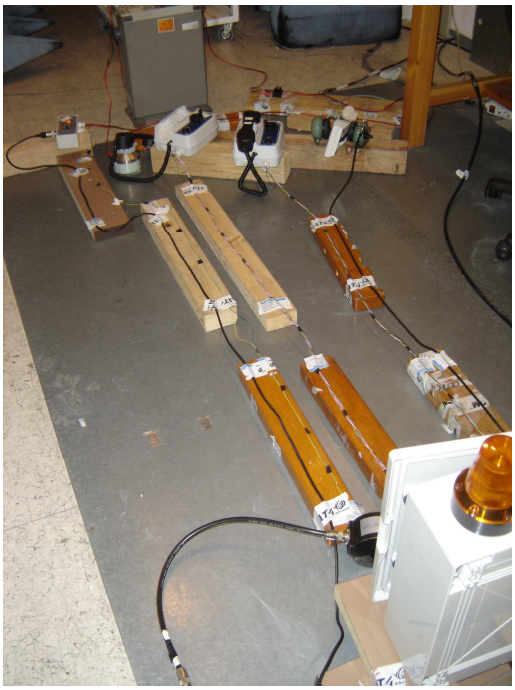
TEST RESULTS :

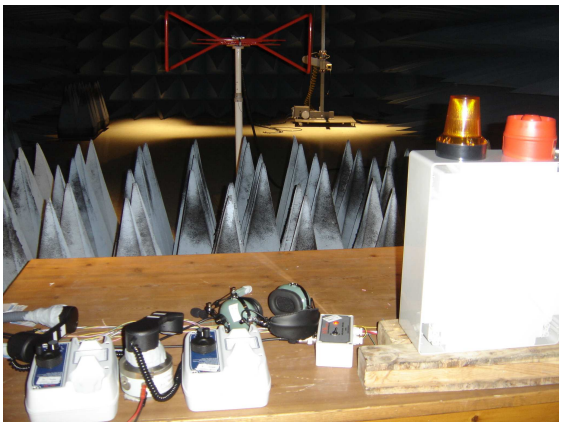
ACPL	S/	OM#	COMMENTS	RESULT
1	14	01	Ok, no fails detected	P
2	14	01	Ok, no fails detected	P
3	14	01	Ok, no fails detected	P
4	14	01	Ok, no fails detected	P
5	14	01	Ok, no fails detected	P
6	14	01	Ok, no fails detected	P
7	14	01	Ok, no fails detected	P
8	14	01	Ok, no fails detected	P
9	14	01	Ok, no fails detected	P
10	14	01	Ok, no fails detected	P
11	14	01	Ok, no fails detected	P
12	14	01	Ok, no fails detected	P
13	14	01	Ok, no fails detected	P
14	14	01	Ok, no fails detected	P
15	14	01	Ok, no fails detected	P
16	14	01	Ok, no fails detected	P
17	14	01	Ok, no fails detected	P
18	14	01	Ok, no fails detected	P
19	14	01	Ok, no fails detected	P
20	14	01	Ok, no fails detected	P

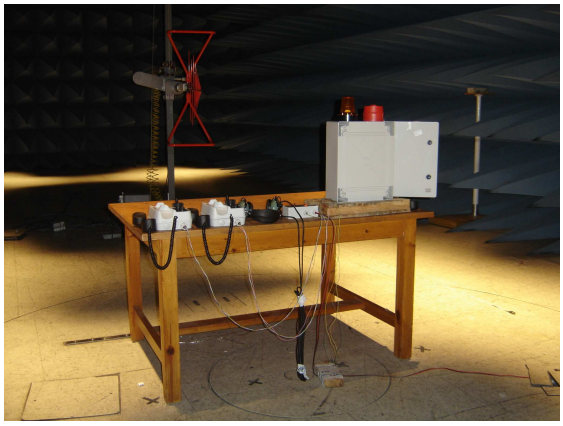
ACPL	S/	OM#	COMMENTS	RESULT
21	14	01	Ok, no fails detected	P
22	14	01	Ok, no fails detected	P
23	14	01	Ok, no fails detected	P
24	14	01	Ok, no fails detected	P
25	14	01	Ok, no fails detected	P
26	14	01	Ok, no fails detected	P
27	14	01	Ok, no fails detected	P
28	14	01	Ok, no fails detected	P
29	14	01	Ok, no fails detected	P
30	14	01	Ok, no fails detected	P
31	14	01	Ok, no fails detected	P
32	14	01	Ok, no fails detected	P
33	14	01	Ok, no fails detected	P
34	14	01	Ok, no fails detected	P
35	14	01	Ok, no fails detected	P
36	14	01	Ok, no fails detected	P
37	14	01	Ok, no fails detected	P
38	14	01	Ok, no fails detected	P
39	14	01	Ok, no fails detected	P
40	14	01	Ok, no fails detected	P

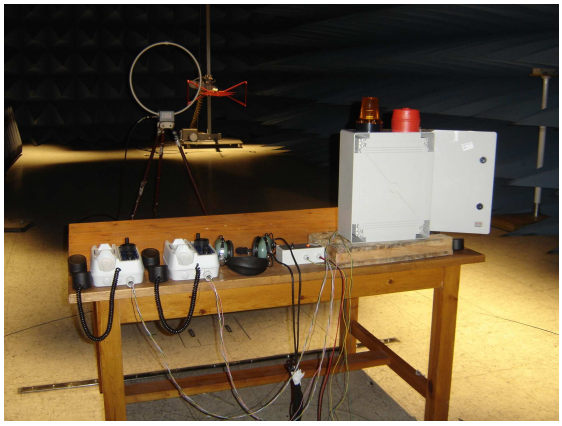
APPENDIX B: Pictures











CERTIFICADO DE ENSAYO

TEST CERTIFICATE

Nº: 28859CEA.001

Producto **Product**	:	**SISTEMA DE TELEFONOS AUTOGENERADOS (BATTERYLESS) AU-MAG** **SELF POWERED TELEPHONE SYSTEM (BATERYLESS) AU-MAG**
Marca comercial **Trade Mark**	:	**SCM SISTEMAS, S.L.**
Modelo /Tipo Ref. **Model / Type Ref.**	:	**AU-MAG**
Fabricante **Manufacturer**	:	**SCM SISTEMAS, S.L.**
Peticionario **Tested on request of**	:	**SCM SISTEMAS, S.L.**
Otros datos de identificación - n/s **Full identification of the product - s/n**	:	**Teléfono autogenerado (batteryless) AU-MAG-A; Teléfono autogenerado (batteryless) AU-MAG; Teléfono autogenerado (batteryless) en caja estanca AU-CJ-MAG; Auriculares con micrófono y amplificador AU-ACM-A.** **Self powered telephone (batteryless) AU-MAG-A; Self powered telephone (batteryless) AU-MAG; Self powered telephone (batteryless) in waterproof case AU-CJ-MAG; Heatset with microphone and amplifier AU-ACM-A.**
Norma(s) de referencia **Standard(s)**	:	**- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)** **- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.** **- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.** **- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).** **- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.** **- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic (*)**
Certificado basado en el informe **Test certificate based on the test report**	:	**Nº. 28859REA.001 de fecha / dated on: 2010-10-07**
Resultado **Summary**	:	**CONFORME** **COMPLIANT**

(*)Los resultados del ensayo de niebla salina solo aplican al equipo Teléfono autogenerado (batteryless) en caja estanca AU-CJ-MAG.
The results of the salt mist test only applied to the equipment Self powered telephone (batteryless) in waterproof case AU-CJ-MAG.

AT4 wireless es un laboratorio de ensayo competente para la realización de los ensayos objeto del presente informe.
AT4 wireless is a testing laboratory competent to carry out the tests described in the report.

Nota: Este certificado de ensayo sólo es aplicable a los objetos sometidos a ensayo cuya identificación se recoge en el informe en que se basa, ensayados en el modo y fecha(s) declaradas del mismo informe. Por tanto, no implica una certificación de la producción.
Note: This test certificate is only applicable to the unit(s) of the product submitted, shown in the reference report, tested and used in the mode and date shown in the mentioned test report. It does not imply a certification of the production..

Málaga,

AT4 wireless, S.A.
Parque Tecnológico de Andalucía,
c/ Severo Ochoa nº 2
29590 Campanillas/ Málaga/ España
Tel. 952 61 91 00 - Fax 952 61 91 13
MÁLAGA, C.I.F. A29 507 456
Registro Mercantil de Málaga,Tomo 1169,
Libro 82, Folio 133, Hoja MA3729

TEST REPORT

REFERENCE STANDARD:

- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)
- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.
- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.
- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).
- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.
- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic.

NIE..... :	28608REA.001
Approved by (name / position & signature) ..... :	Juan Carlos Soler / Consultant
Elaboration date ..... :	2010-10-07
Identification of item tested..... :	SELF POWERED TELEPHONE SYSTEM (BATERYLESS) AU-MAG
Trademark ..... :	SCM SISTEMAS, S.L.
Model and/or type reference ..... :	AU-MAG
Serial number ..... :	See paragraph “Usage of samples” for details
Features ..... :	Not indicated
Description ..... :	Self powered telephone (batteryless) AU-MAG-A Self powered telephone (batteryless) AU-MAG Self powered telephone (batteryless) in waterproof case AU-CJ-MAG Heatset with microphone and amplifier AU-ACM-A
Applicant ..... :	SCM SISTEMAS, S.L.
Address..... :	C/ Benjamin Franklin, nº351, nave 6. 33211 Gijón (Spain)
CIF/NIF/Passport ..... :	B33826058
Contact person:	Guillermo Florez
Telephone / Fax..... :	985356263 / 985348083
e-mail: ..... :	guillermo@scmsistemas.com

Test samples supplier ..... :	SCM SISTEMAS, S.L.
Address ..... :	C/ Benjamin Franklin, nº351, nave 6.
	33211 Gijón (Spain)
CIF/NIF/Passport ..... :	B33826058
Contact person: ..... :	Guillermo Florez
Telephone / Fax..... :	985356263 / 985348083
e-mail: ..... :	guillermo@scmsistemas.com
Manufacturer ..... :	SCM SISTEMAS, S.L.
Address ..... :	C/ Benjamin Franklin, nº351, nave 6.
	33211 Gijón (Spain)
CIF/NIF/Passport ..... :	B33826058
Telephone / Fax..... :	985356263 / 985348083
Test method requested ..... :	Cold
(See appendix A. for details)	Dry Heat
	Damp Heat
	Salt mist
	Vibrations

Standard ..... :

- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)
- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.
- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.
- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).
- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.
- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic.

Non-standardized test method ..... : N/A

Report template No..... : FDT08_12

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Competences and guarantees

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance programme for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the AT4 wireless internal document PODT000.

Usage of samples

Samples undergoing test have been selected by: the client.

Sample M/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
28859C/06	Self powered telephone (batteryless) in waterproof case	AU-CJ-MAG	456.006 scm	2009-01-27
28859C/07	Headset with microphone and amplifier	AU-ACM-A	456.023 scm	2009-01-27
28859C/24	Self powered telephone (batteryless)	AU-MAG-A	--	2009-01-27
28859C/25	Self powered telephone (batteryless)	AU-MAG	--	2009-01-27

1. Sample M/01 has undergone the following test(s):

   Cold test, Dry heat test and Damp heat test.

Sample M/02 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
28859C/52	Self powered telephone (batteryless) in waterproof case	AU-CJ-MAG	456.006 scm	2010-07-27
28859C/07	Headset with microphone and amplifier	AU-ACM-A	456.023 scm	2009-01-27
28859C/24	Self powered telephone (batteryless)	AU-MAG-A	--	2009-01-27
28859C/25	Self powered telephone (batteryless)	AU-MAG	--	2009-01-27

1. Sample M/02 has undergone the following test(s):

   Vibrations test.

Sample M/03 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
28608C/52	Self powered telephone (batteryless) in waterproof case	AU-CJ-MAG	456.006 scm	2010-07-27

1. Sample M/03 has undergone the following test(s):

   Salt mist test.

Testing period

The performed test started on 2010-05-11 and finished on 2010-09-15.

The tests have been performed at AT4 wireless.

Environmental conditions

The following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 25 % Max. = 75 %

Summary

Considering the results of the performed test, the item/s under test is/are **IN COMPLIANCE** with the requested specifications specified in the standard.

NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".

Remarks and comments

See Appendix A. Test results.

Testing veredicts

Not applicable .....: NA

Pass .....: P

Fail: F

Not measured .....: NM

TESTS	VERDICT			
	NA	P	F	NM
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 5 Cold. Test B.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 6 Dry heat. Test B.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 7 Damp heat.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 8 Salt mist.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 9 Vibrations. Curve 1.		P		

APPENDIX A: Test result

TEST METHOD REQUESTED

TEST	BASIC STANDARD	REGISTER SOCIETY AND CLAUSE	TEST SEVERITY
Dry Heat	IEC 60068-2-2	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 6.	Test Temperature: +70ºC Duration: 2 h. • The equipment under test is placed in the test chamber at room temperature and remains connected and switched on throughout the test. During the final 60 minutes of the test functional test shall be performed. • Functional test after test at room temperature.
Cold	IEC 60068-2-1	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 5.	Test Temperature: -25ºC Duration: 2 h. • The EUT is placed in the test chamber at room temperature and remains connected but not switched on, during the cooling phase and throughout the test. During the final 60 minutes of the test functional test shall be performed at test temp. • Functional test after test at room temperature and an insulation test.
Damp Heat	IEC 60068-2-30	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 7.	-Test Temperature: +55ºC -Relative humidity: 95% -Duration: 2 cycles of 24 h each. -Insulation resistance measurement shall be performed before and after Damp Heat test. • The EUT is placed in the test chamber at room temperature and remains connected and switched on throughout the first test cycle. During the second test cycle the EUT is switched off except for the functional test. • Functional test shall be performed at test temperature within the first 2 hours of the first and the last 2 hours of the second test cycle.

TEST	BASIC STANDARD	REGISTER SOCIETY AND CLAUSE	TEST SEVERITY
Salt mist	IEC 60068-2-52	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 8.	- Severity level: 1 - Number of sprayings: 4 - Storage period in damp chamber: 7days, after each spraying. - Spray duration: 2 h - Temperature: +25ºC±10ºC. - Saline solution: 5% NaCl - PH value : 6,5 to 7,2 at 20ºC. - Storage temperature: +40ºC. - Storage Humidity: 93%RH. Before commencing the test an insulation resistance measurement shall be taken and a functional test shall be performed. During the test the equipment under test is connected but is not switched on. The test consists of 4 sprayings and 7 days storage period functional tests shall be performed. On completion of the test a functional test is performed and a insulation resistance measurement and the condition of the equipment under test is evaluated (visual inspection)
Vibrations	IEC 60068-2-6	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 9.	**Vibration** -Frequencies: 5 – 100 Hz 5 Hz – 13,2 Hz: 1,0 mm constant displacement. -13,2 Hz – 100 Hz: 0,7 g constant acceleration. -Sweep rate: 1 oct/min. -Axis: 3 (X,Y,Z) -1st Test: Determination of resonance points. -2nd Test: If points of resonance are determined on the equipment under test with an amplification factor Q>2 the test duration is 90 min per resonance frequency, if no at 30 Hz. -Device under test shall be at the rated operational voltage during test.

RESULTS OF DRY HEAT TEST:

Test Severity: 70ºC / 2 h:

Functional test at 70ºC: PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.

RESULTS OF DAMP HEAT CYCLIC TEST:

Functional tests during test : PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF COLD TEST:

Test Severity: -25ºC / 2 h:

Functional test at -25ºC: PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF SALT MIST TEST:

Functional tests after each cycle: PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF VIBRATION TEST:

The vibration tests on every axis is composed for two vibration, one vibration is to perform a sweep to search resonance points with Q>2. The second test consist in to vibrate the sample during 90 minutes at resonance frequency, if no resonance frequency has founded, perform the test at 30 Hz. The equipment shall be in operating mode during the test.

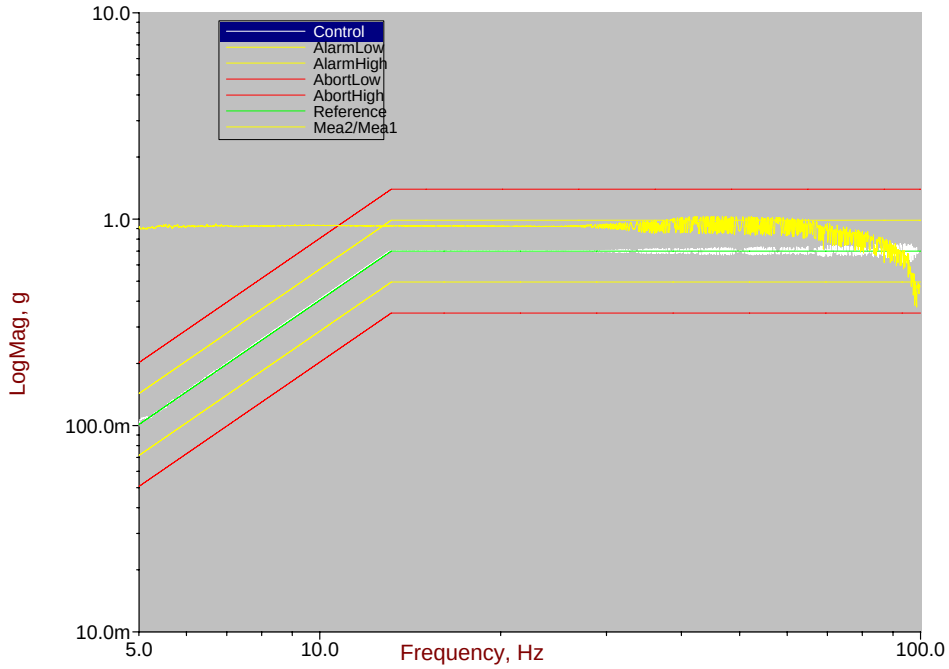
Results of Vibration test:

Severity of the test:

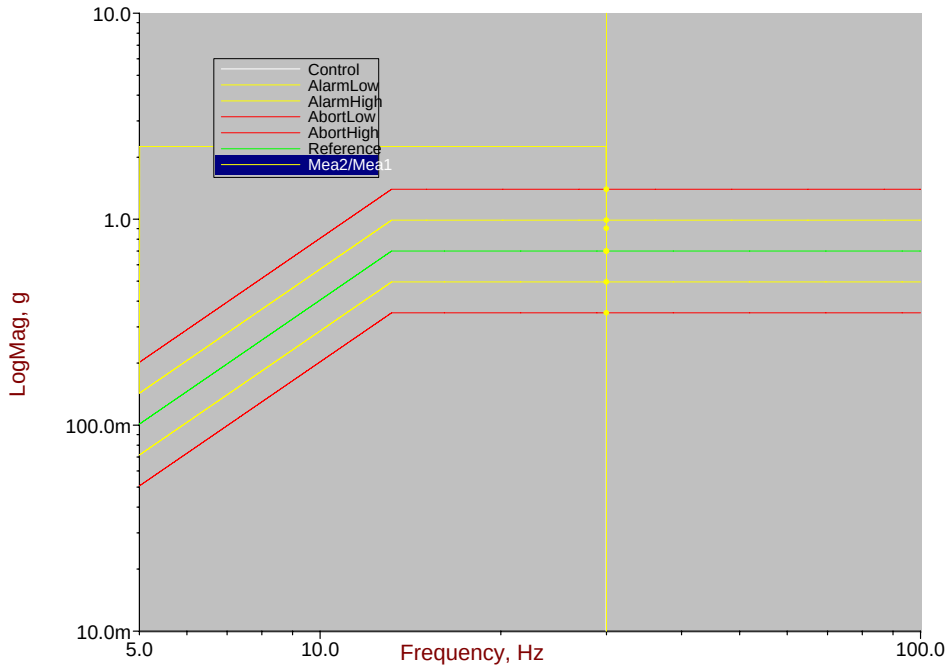
- Frequencies: 5 – 100 Hz
- 5 Hz – 13,2 Hz: 1,0 mm constant displacement.
- 13,2 Hz – 100 Hz: 0,7 g constant acceleration.
- Sweep rate: 1 oct/min.

Axis X:
Resonance searching: No resonance points with Q>2 has appeared during this test.
Sine vibration: No fails have appeared during this test (90 min at 30 Hz). After test the equipment continues working properly.

Next is the vibration graph where resonance points with Q>2 are not observed during the test



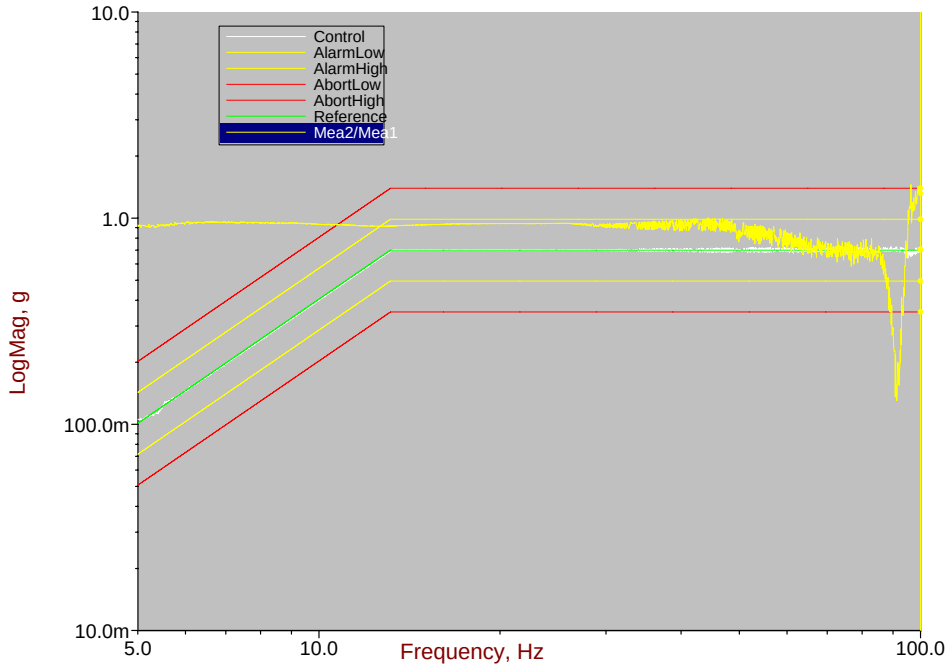
Vibration graph 90 min at 30 Hz (Axis X)



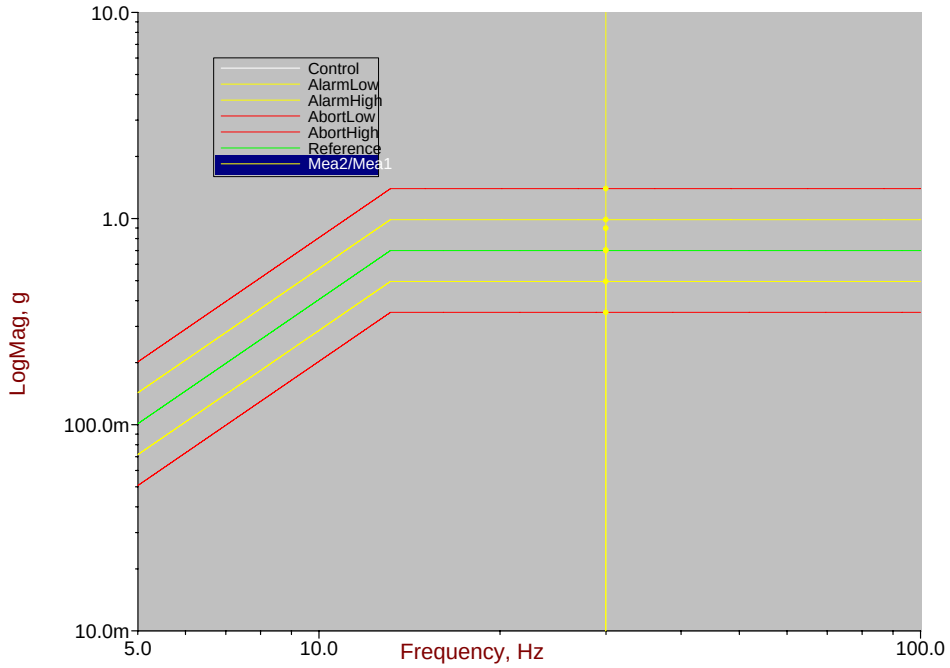
Axis Y:

Resonance searching: No resonance points with Q>2 has appeared during this test.
Sine vibration: No fails have appeared during this test (90 min at 30 Hz). After test the equipment continues working properly.

Next is the vibration graph where resonance points with Q>2 are not observed during the test



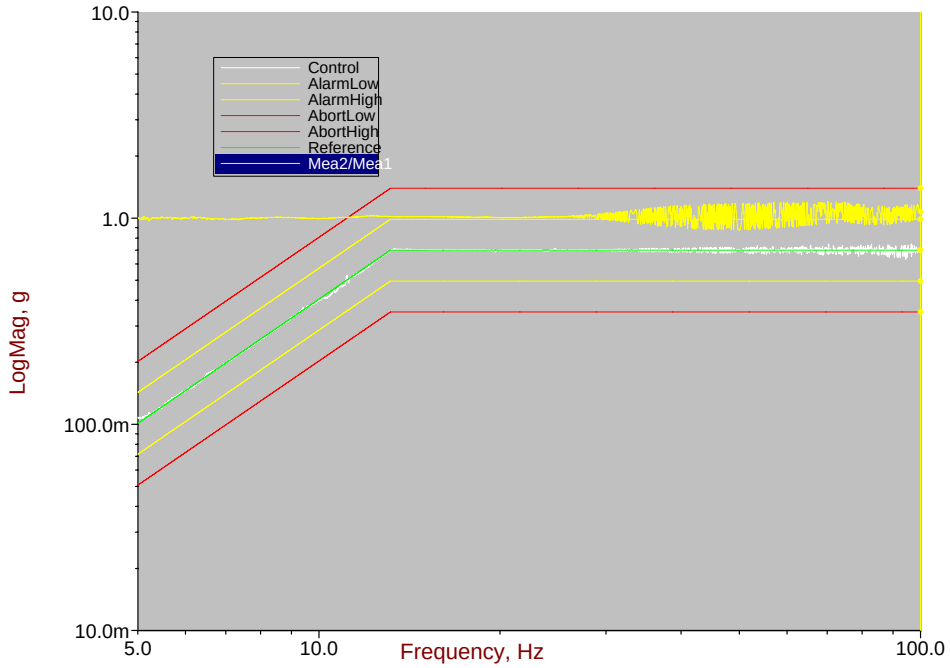
Vibration graph 90 min at 30 Hz (Axis Y)



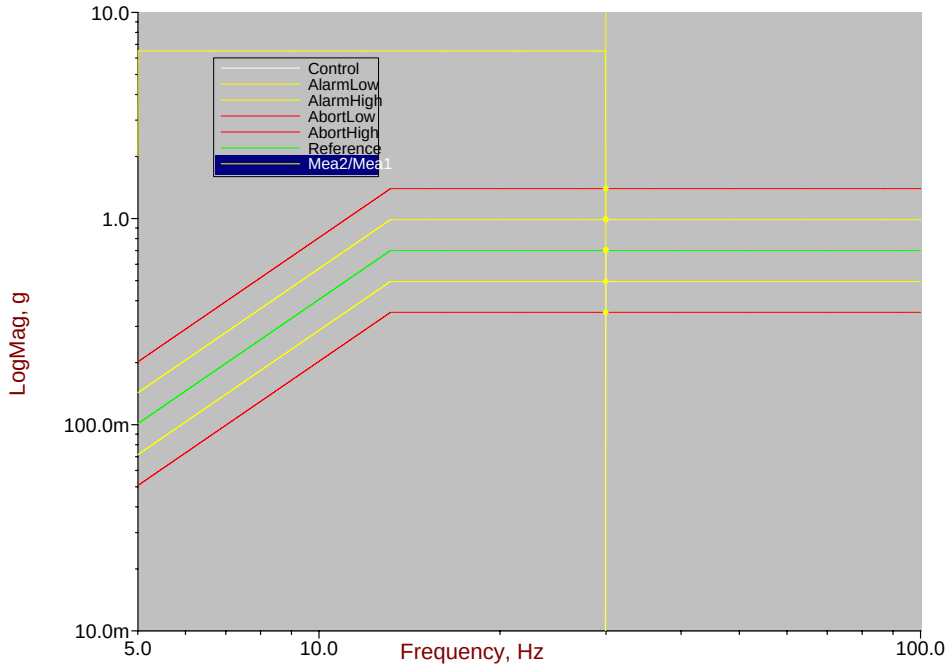
Axis Z:

Resonance searching: No resonance points with Q>2 has appeared during this test.
Sine vibration: No fails have appeared during this test (90 min at 30 Hz). After test the equipment continues working properly.

Next is the vibration graph where resonance points with Q>2 are not observed during the test



Vibration graph 90 min at 30 Hz (Axis Z)



APPENDIX B: Photographs

Climatic test:

Dry heat, cold, damp heat

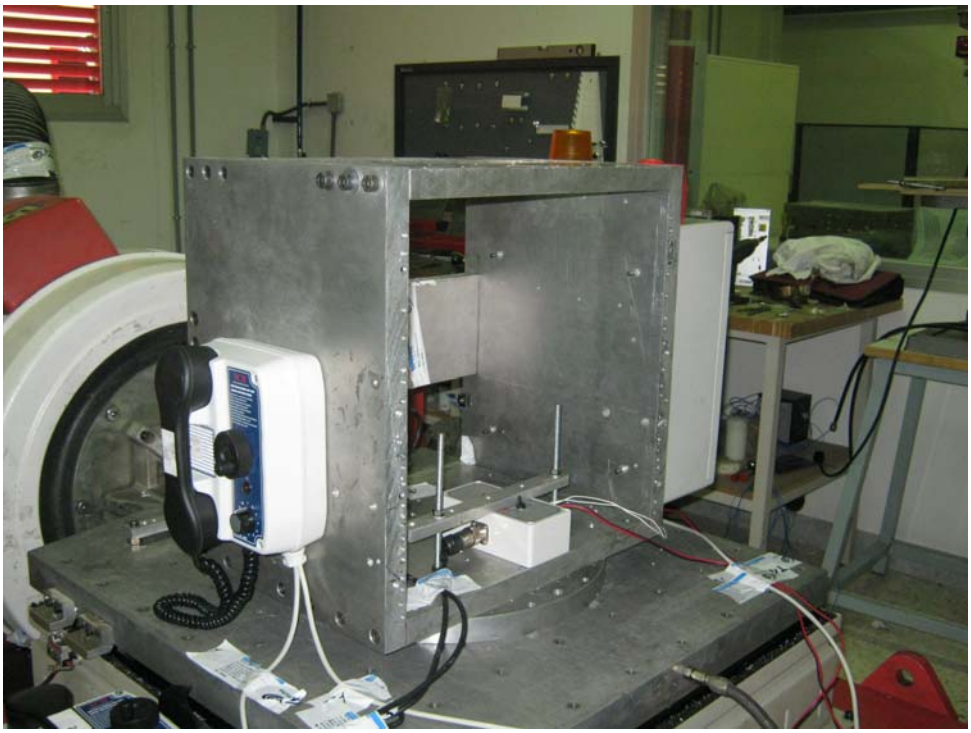
Climatic test:

Dry heat, cold, damp heat

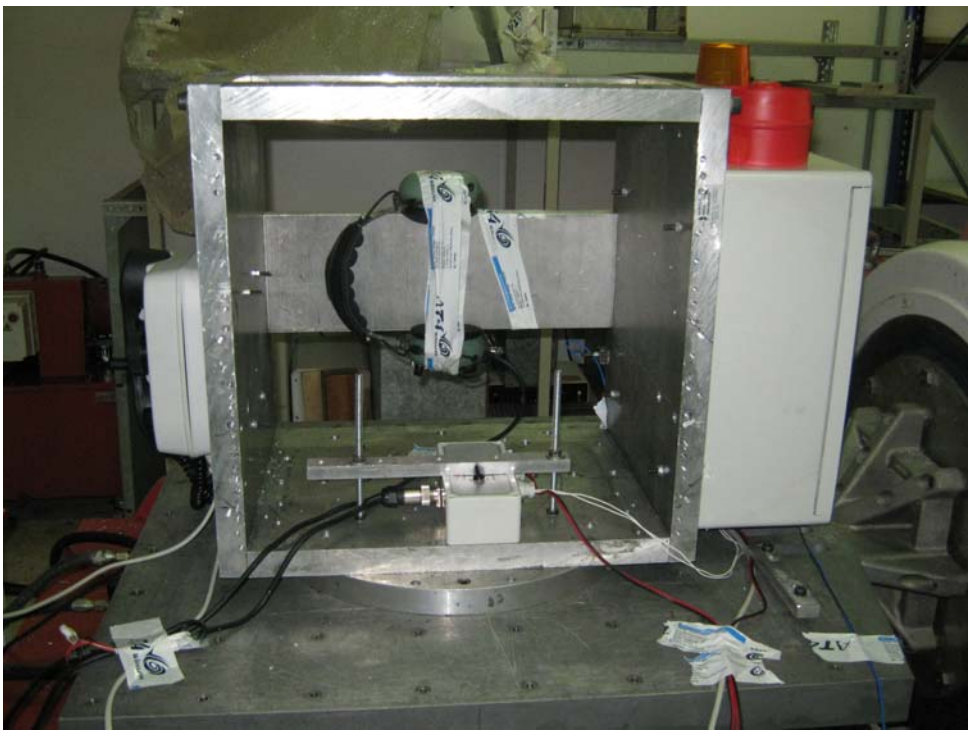
Interior view of the sample after salt mist test

Vibration test

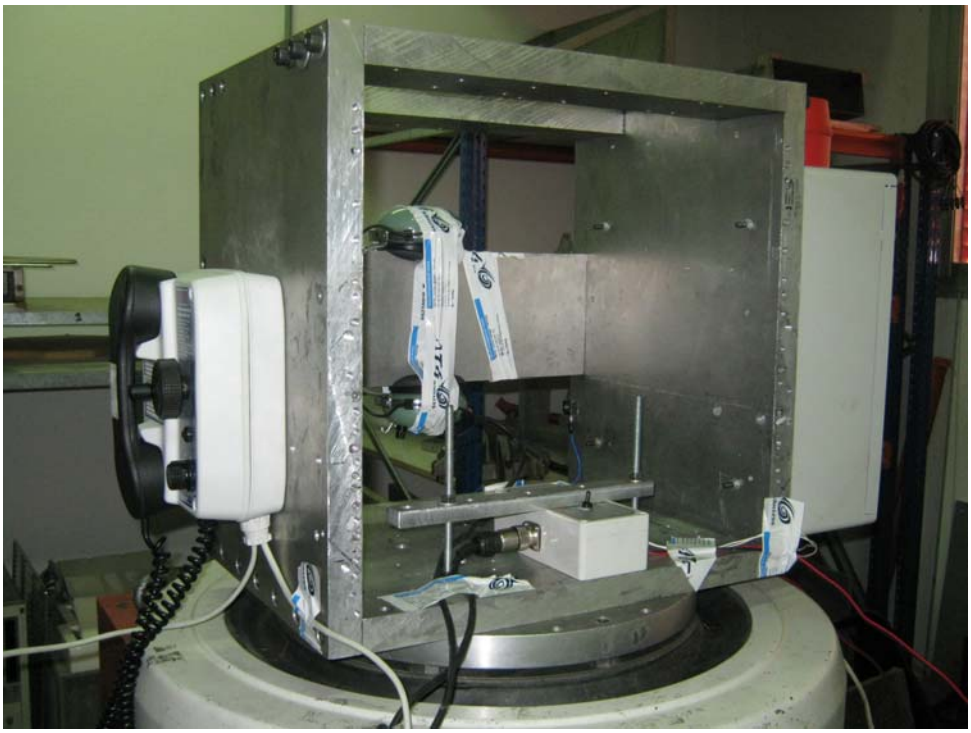
Axis X



Vibration test
Axis Y



Vibration test
Axis Z



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TEST REPORT

Germanischer Lloyd: 2003 (Partial)

Test requirements for electrical / Electronic equipment and systems

NIE	28859RSE.001
Approved by (name / position & signature)	Rafael González / Consultant .....
Elaboration date	2009-12-23
Identification of item tested	SELFPOWERED TELEPHONE SYSTEM MODEL AU-MAG
Trademark	SCM
Model and/or type reference	PROTOTYPE
Serial number	See section "usage of samples" of test report
Features	12Vdc
Description	Selfpowered telephone system. Equipment with insulating enclosure and class III against electrical shock.
Applicant	SCM SISTEMAS
Address	C/ Libertad 14-2A. C.P.: 33206, Gijón, Asturias. Spain.
CIF/NIF/Passport	B-33826058
Contact person	Guillermo Florez / Luis Calleja
Telephone / Fax	+34 985 356 263 / +34 985 348 083
e-mail:	guillermo@scmsistemas.com
Test samples supplier	SCM SISTEMAS
Address	C/ Libertad 14-2A. C.P.: 33206, Gijón, Asturias. Spain.
CIF/NIF/Passport	B-33826058
Contact person:	Guillermo Florez / Luis Calleja
Telephone / Fax	+34 985 356 263 / +34 985 348 083
e-mail:	guillermo@scmsistemas.com
Manufacturer	SCM SISTEMAS
Address	C/ Libertad 14-2A. C.P.: 33206, Gijón, Asturias. Spain.
CIF/NIF/Passport	B-33826058
Telephone / Fax	+34 985 356 263 / +34 985 348 083

Test method requested
Standard ..... GL 2003
Test procedure ..... POSE000 (General Procedure of Safety Lab)
Non-standardized test method ..... N/A
Report template No..... FSE442_00
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Competences and guarantees

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance programme for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the AT4 wireless internal document PODT000.

Usage of samples

Samples undergoing test have been selected by: **the supplier**

Sample M/01 is composed of the following elements:

Control Number	Description	Manufacturer	Model	Serial Nº	Date of reception
28859/06	Selfpowered telephone nº 3	SCM SISTEMAS	AU-CJ-MAG	0037/09	2009-01-27
28859/07	Headset with microphone	SCM SISTEMAS	ACM	0022/09	2009-01-27
28859/08	Selfpowered telephone nº 2	SCM SISTEMAS	AU-MAG-A	0026/09	2009-01-27
28859/09	Selfpowered telephone nº 1	SCM SISTEMAS	AU-MAG	0073/09	2009-01-27

Sample M/02 is composed of the following elements:

Control Number	Description	Manufacturer	Model	Serial Nº	Date of reception
28859/06	Selfpowered telephone nº 3	SCM SISTEMAS	AU-CJ-MAG	0037/09	2009-01-27
28859/07	Headset with microphone	SCM SISTEMAS	ACM	0022/09	2009-01-27
28859/24	Selfpowered telephone	SCM SISTEMAS	AU-MAG-A	---	2009-02-11
28859/25	Selfpowered telephone	SCM SISTEMAS	AU-MAG	---	2009-02-11

1. Sample M/01 has undergone the test(s) of the paragraph 1 and 2 of the specified in subclause "Test method requested".
2. Sample M/02 has undergone the test(s) of the paragraph 4, 13 and 14 of the specified in subclause "Test method requested"..

Testing period

The performed test started on 2009-01-26 and finished on 2009-01-29.

The tests have been performed at AT4 wireless laboratory.

Environmental conditions

Date	Temp. Max. (ºC)	Temp. Min. (ºC)	Hum. Max. (%HR)	Hum. Min. (%HR)	Pressure Max. (mbar)	Pressure Min. (mbar)	Limit
2009-01-26	21.9	17.7	71	32	1015	1005	10 - 35 ºC 30 – 90 % 860 – 1060 mbar
2009-01-27	21.0	18.8	75	49	1020	1012	
2009-01-28	21.3	19.1	78	55	1019	1011	
2009-01-29	21.7	18.9	55	42	1017	1007	

Summary

Considering the results of the performed test according to standard **GL 2003, Paragraphs 1, 2, 4, 13, 14** the item under test is IN COMPLIANCE with the requested specifications specified in the standard.

NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".

Remarks and comments

N/A

Personnel

Tests have been performed by:

· Jesús García

· Iván Guerrero

Instruments used

( )	0030	Caliber	( )	1297	Insulation
( )	0055	Probe 100 MHz	( )	1298	Plate 3 mm
( )	0148	Digital multimeter	( )	1299	Dry sand 170-250 cm
(X)	0151	Autotransformer	( )	1300	Top 1 liter
( )	0152	Autotransformer	( )	1301	Burn circuit tester
( )	0153	Leakage tester	( )	1302	Plate 2 mm
( )	0154	Digital multimeter	( )	1304	Rain arc R=600 mm
( )	0155	Digital multimeter	( )	1305	Rain arc R=800 mm
( )	0157	Digital multimeter	( )	1306	Thickness gauge
( )	0158	Digital multimeter	( )	1308	Lampholder E-10
( )	0159	Register UR180	( )	1309	Bushing device
( )	0160	Digital thermometer	( )	1310	Lampholder E-40
( )	0161	Digital thermometer	( )	1311	Lampholder G-13
( )	0162	Digital thermometer	( )	1312	Immersion tank
(X)	0164	Insulation transformer	( )	1313	Rod 625 mm2
(X)	0166	Vatimeter	( )	1314	Threw gauges
( )	0170	Dilectric stength meter	( )	1316	Durability tester
( )	0172	Low resistance meter	( )	1317	Connection tester
( )	0173	Electronic load	( )	1318	Stop plate
( )	0174	Hydra system	(X)	1319	Dielectric strength tester
( )	0175	Electronic load module	( )	1320	Luminaire test corner
( )	0176	Electronic load module	( )	1321	Luminaire test grid
( )	0177	Electronic load module	( )	1322	Impact plate
( )	0179	Electronic scale	( )	1323	Weight 4,5 Kg
( )	0192	Thermocouple	( )	1324	Single-phase ballast
( )	0193	Thermocouple	( )	1325	Manometer 0-1,6 bar
( )	0194	Thermocouple	( )	1326	Manometer 0-1,6 bar
( )	0195	Thermocouple	( )	1328	Manometer 0-10 bar
( )	0196	Thermocouple	( )	1329	Cooker
( )	0229	Power supply unit	( )	1330	Cooker
( )	0230	Control	( )	1331	Cooker
( )	0249	Oscilloscope	( )	1332	Cooker
( )	0421	Thermocouple	( )	1333	Tank
( )	0422	Thermocouple	( )	1334	Tank
( )	0423	Thermocouple	( )	1335	Tank
( )	0424	Thermocouple	( )	1336	Tank
( )	0425	Thermocouple	( )	1337	Weight 5 Kg
( )	0426	Thermocouple	( )	1338	Wooden ball
( )	0427	Thermocouple	( )	1339	Brass disc
( )	0428	Thermocouple	( )	1340	Steel ball D 20 mm
( )	0429	Thermocouple	( )	1341	Lien wire
( )	0430	Thermocouple	( )	1346	Cotton 100 %
( )	0431	Steel ball	( )	1348	Impact hammer callibrator
( )	0432	Gauges	( )	1349	Callibrator of the IH callibrator
( )	0433	Test pin	( )	1350	Luminaries pressure tester
( )	0434	Accessibility probe	( )	1351	Bend wire guide
( )	0435	Test finger	( )	1352	Rain arc R=400 mm
( )	0436	Contact indicator	( )	1353	Rain arc R=200 mm
( )	0437	Dynomometer 0-50 N	( )	1365	Grid 7 mm
( )	0438	Dynomometer 0-100 N	( )	1366	Grid 8 mm
( )	0439	Dynomometer 0-250 N	( )	1367	Cable set
( )	0440	Test hood	( )	1368	Cable set
( )	0441	Ball pressure apparatus	( )	1369	Revolving support
( )	0457	Test probe	( )	1371	Three-phases power supply
( )	0470	Insulation transformer	( )	1373	Wire
( )	0471	Insulation transformer	( )	1374	Variable resistor
( )	0489	Telecommunication probe	( )	1375	Tin 10 cm
( )	0490	Test probe	( )	1376	Cotton cloth
( )	0493	Test ramp	( )	1377	Tin 10 cm
( )	0497	Leakage measurement	( )	1378	External micrometer
( )	0498	Resistance box	( )	1380	Top 13-15-17 cm
( )	0499	Test pot	( )	1381	Tray 600 mm
( )	0500	Silicone	( )	1382	Edge tester

( )	0503	n-hexane	( )	1403	Deflex tester
( )	0504	Chlohidre anhydride	( )	1404	Solution CLNH 0,1 %
( )	0505	Electronic scale 1-600	( )	1406	Polyester
( )	0507	weight 50 g	(X)	1407	Digital vatimeter
( )	0508	weight 500 g	( )	1409	Immersion resistor
( )	0511	Wrap paper	( )	1419	Talcun dust
( )	0513	Set square	( )	1459	Defibrillator
( )	0514	Metallic rule	( )	1464	Master lamp
( )	0515	Flexometer	( )	1465	Master lamp
( )	0517	Gauze	( )	1466	Master lamp
( )	0518	Cloth	( )	1467	Master lamp
( )	0519	Desecator	( )	1468	Master lamp
( )	0522	Gas-oil	( )	1475	Metallic surface 0,1 m2
( )	0533	Bunsen burner	( )	1480	Climatic chamber
( )	0534	Spoon	( )	1481	Test circuit EN 60601-2-2
( )	0535	Methane gas	( )	1488	Peacemaker filter
( )	0538	Drop support	( )	1490	Test circuit EN 60598-1
( )	0539	PWB scrash tester	( )	1492	Test ballast EN 60928
( )	0542	Ni-cr wire	( )	1493	Test ballast EN 60598
( )	0543	Radiation tester	( )	1506	Peacemaker power supply
( )	0544	Triplex clamp	( )	1510	Nail finger test
( )	0546	Fixing support	( )	1511	Grid 3,4,7,8
( )	0576	Thermocouple	( )	1512	Solution PH 9,21
( )	0577	Thermocouple	( )	1513	Solution PH 4,01
( )	0579	Thermocouple	( )	1514	Solution PH 7,00
( )	0580	Thermocouple	( )	1516	High capacity capacitor
( )	0581	Thermocouple	( )	1550	Chroming rod
( )	0583	Oscilloscope probe x10	( )	1560	Register
( )	0584	Oscilloscope probe x10	( )	1612	High current tester
( )	0585	Static sensor	( )	1615	Glass ball 1-1,4 mm
( )	0586	Vessel	( )	1620	Imact tester (figure 22)
( )	0606	Double switch	( )	1621	Abrasion tester
( )	0607	syringe	( )	1622	Force remoce tester
( )	0610	Weight	( )	1623	Anchorage cable tester
( )	0612	Dinamometer screwdriver	( )	1624	Switch tester
( )	0614	Torque tester	( )	1635	Luxometer
( )	0621	Pulse generator accessory	( )	1636	PV probe
( )	0629	Pulse generator	( )	1653	Leakage tester EN 60598
( )	0640	Saline solution	( )	1654	Laser power and energy tester
( )	0641	Ethylic	( )	1655	Laser tester accesory
( )	0642	Demineralized water	( )	1680	Weight 400 g
( )	0643	Semianechoic top	( )	1681	Test probe
( )	0644	mercury	( )	1682	Test probe
( )	0648	Vacuum pump	( )	1683	Weight 400 g
( )	0650	peacemaker system	( )	1684	Test probe
( )	0652	torque accesory	( )	1685	Test probe
( )	0674	Hydrophone	( )	1686	Test probe
( )	0675	Power amplifier	( )	1687	Test probe
( )	0681	Manometer	( )	1688	Test probe
( )	0737	Luxometer	( )	1689	Test probe
( )	0797	Current clamp	( )	1690	Test probe
( )	0798	Current clamp	( )	1691	Test probe
( )	0799	Current clamp	( )	1692	Test probe
( )	0854	Sinusoidal generator	( )	1693	Test probe
( )	0895	Rubber insulation	( )	1694	Test probe
( )	0938	Climatic chamber	( )	1695	Test probe
( )	0943	Oven	( )	1696	Test probe
(X)	0979	Impact hammer	( )	1697	Test probe
( )	1020	Heating test corner	( )	1698	Test probe
( )	1060	Leakage tester	( )	1699	Test probe
( )	1066	Test ball 75 mm	( )	1700	Test probe
( )	1067	Cylinder rod	( )	1701	Test probe
( )	1068	Glass plate	( )	1702	Test probe
( )	1070	Three-phases switch	( )	1703	Test probe
( )	1078	Resistance box	( )	1704	Weight 250/1000 g
( )	1079	White noise filter	( )	1705	Weight 250/1000 g
( )	1087	Current clamp	( )	1706	Test probe
( )	1088	Current clamp	( )	1707	Edge tester

( )	1089	Current clamp	( )	1708	Small parts cylinder
( )	1096	Leakage tester	( )	1709	Protection device
( )	1098	Impact pendulum	( )	1710	Accessibility gauge
( )	1099	Weight 0,15 Kg	( )	1711	Accessibility gauge
( )	1100	Dinamometer screwdriver	( )	1712	Test gauge
( )	1101	Dinamometer screwdriver	( )	1713	Test gauge
( )	1102	Conic test probe	( )	1714	Bend tester
( )	1105	Rain drop tester	( )	1715	Drop tester
( )	1106	Glowing wire	( )	1716	UV tester
( )	1107	Wire bend tester	( )	1717	Safety tester
( )	1108	Test chain	(X)	1754	Digital register
( )	1109	Ball 50 mm	( )	1759	Ultrasound system
( )	1110	Test rod 2,5x100	( )	1839	Manometer 0-1 bar
( )	1111	Ball 12,5 mm	( )	1841	Manometer 0-1,6 bar
( )	1112	Ball 50 mm with handle	( )	1842	Manometer 0-10 bar
( )	1113	Test rod 1x100	( )	1843	Manometer 0-10 bar
( )	1127	Weight 0,25 Kg	( )	1844	Manometer 5-375 mm HG
( )	1128	Weight 0,5 Kg	( )	1849	Weight 1 Kg
( )	1129	Weight 1.5 Kg	( )	1859	Temperature winding tester
( )	1143	Ammonic chloride	( )	1865	Ultrasound system
( )	1144	Carbon tetrachloride	( )	1870	Low resistance meter
( )	1145	Input tester	( )	1960	Test mandril
( )	1159	Silver wire 0,29 mm	( )	1976	Drill tester
( )	1160	Silver wire 0,39 mm	( )	2039	Spectroradiometer
( )	1161	Silver wire 0,52 mm	( )	2042	Probe 10:1
( )	1162	spraying 12,5 mm	( )	2043	Probe 10:1
( )	1163	spraying 6,3 mm	(X)	2048	Dinamometer spanner 1,5 Nm
( )	1164	Pulse 10 KV generator	( )	2049	Dinamometer spanner 6 Nm
( )	1165	Dielectric strength clamp	( )	2050	Dinamometer spanner 50 Nm
( )	1166	Thermocouple	( )	2055	Lampholder E-14
( )	1167	Weight 500 Gr (20 units)	( )	2056	Lampholder E-14
( )	1168	Spillage tester	( )	2065	Digital termometer
( )	1169	Spray tester	( )	2074	Weight 5 Kg / 10 Kg
( )	1170	Frost tester	( )	2123	Dynamometer
( )	1171	Silver wire box	( )	2133	Lampholder E-27
( )	1172	Lampholder	( )	2134	Lampholder E-27
( )	1173	Lampholder	( )	2135	Test probe 315 gr
( )	1174	Lampholder	( )	2178	Surface 30 x 50 cm
( )	1175	Lampholder	( )	2190	Iron support tester
( )	1176	Thermocouple	( )	2211	Solution PA-ACS.ISO 5
( )	1177	Test grid	( )	2212	Solution PA-ACS-500 G
( )	1178	Test grid	( )	2213	Solution PA-ACS-ISO 50
( )	1194	Calliber 0-350 mm	( )	2299	Lampholder E-14
( )	1195	Angle meter	( )	2300	Lampholder E-14
( )	1196	compass	( )	2323	Test corner
( )	1197	Test rod diammeter 2 mm	(X)	2376	Thermographic camera
( )	1198	Test rod diammeter 3 mm	( )	2464	Three-variable resistor
( )	1199	Test rod diammeter 4 mm	( )	2499	Anemometer
( )	1200	Test probe Fig 6 UNE 20514	( )	2589	Flowmeter
( )	1202	Rain simulator	( )	2590	Current clamp
( )	1204	Drop tester	( )	2602	Three-phase vatimeter
( )	1205	Dust chamber + manometer	( )	2603	Current clamp
( )	1213	CTI tester	( )	2604	Current clamp
( )	1222	Coaxial connector	( )	2619	Digital caliber
( )	1223	Isopropylic Alcohol	( )	2620	Digital multimeter
( )	1224	Methylic alcohol	( )	2621	Digital multimeter
( )	1225	Wire 0,5 mm	( )	2622	Digital multimeter
( )	1226	Weight DIN 51953	( )	2633	Laser tester
( )	1227	Weight 2,3 Kg	( )	2634	Laser tester accessory
( )	1228	Climatic chamber	( )	2635	Laser tester accessory
( )	1238	White pine wood	( )	2749	Impact hammer 2,0 J
( )	1239	syringe	( )	2808	Microscope
( )	1240	Telephone line simulator	( )	2809	Lens
( )	1241	Radius gauge	( )	2810	Lens
( )	1242	Radius gauge	( )	2811	Lens
( )	1243	Radius gauge	( )	2838	Oven
( )	1244	Thickness gauge	( )	2946	Temperature and humidity probe
( )	1266	Odometer	( )	3235	Digital conductivity meter

(X)	1269	Leakage tester	( )	3261	Lampholder E-14
( )	1270	Rain automatic tester	( )	3262	Lampholder E-14
( )	1271	Rain arc R=1000 mm	( )	3263	Lampholder E-27
( )	1272	Leakage tester	( )	3264	Lampholder E-27
( )	1273	Pull/torque tester	( )	3297	DC power supply
( )	1276	Flowmeter	( )	3338	Weight 1 Kg
( )	1277	Fuse tester	( )	3357	Spectroradiometer
( )	1278	Fuse tester	( )	3382	Autotransformer
( )	1279	Fuse tester	( )	3383	Autotransformer
( )	1280	Fuse tester	( )	3384	Autotransformer
( )	1281	Mercury	( )	3385	Autotransformer
(X)	1282	Chronometer	( )	3386	Cooper sheet
( )	1283	Digital control	( )	3387	Scrash tester
( )	1284	Leakage tester	( )	3388	Wooden support
( )	1289	Electronic relay circuit	( )	3389	Wooden support 9 mm
( )	1292	Clanaing product	( )	3390	Cotton cloth 26/28 M2/kg
( )	1293	Acetone	( )	3391	Glue
( )	1294	Distilled water	( )	3392	Impact structure
( )	1295	Caustic sode	( )	3449	Absorbent paper
( )	1296	Ice cube	( )	3456	Temperature and humidity probe
			( )	3476	Bunsen burner support

Testing veredicts

Not applicable	:	N/A
Pass	:	P
Fail	:	F
Not measured	:	N/M

Particulars: test item vs. test requirements

Equipment mobility	:	Fixed installation
Operating condition	:	Continuous
Mains supply tolerance (%)	:	N/A
Tested for IT power systems	:	No
IT testing, phase-phase voltage (V)	:	N/A
Class of equipment	:	Class III
Mass of equipment (kg)	:	< 1 Kg
Protection against ingress of water	:	IP X0

Copy of the marking plate

APPENDIX A: Results of test according to GL 2003

GL 2003			
Clause	Requirement – Test	Result – Remark	Verdict
1.	Visual inspection		P
1.1	Test procedure		P
1.2	Test conditions	According to expected environmental condition	P
1.3	General instructions for test performance	No visible damage before the test.	P
1.4	Test result		P
2.	Performance test		P
2.1	Test procedure		P
2.2	Test conditions		P
2.3	General instructions for test performance		P
2.4	Test result		P
4	Power supply variations		P
4.1	Procedure		P
4.2	Test conditions		P
4.3	General instructions for test performance		P
4.4	Test result		P
13.	Insulation resistance		P
13.1	Test procedure		P
13.2	Test conditions	< 65Vdc. 2xUe min 24V	P
13.3	General instructions for test performance		P
13.4	Test results		P
14.	High voltage		P
14.1	Test procedure		P
14.2	Test conditions		P
14.3	General instructions for test performance		P
14.4	Test results		P

4.	TABLE: electrical data (in normal conditions)	P

Test condition	Measured voltage	Deviation	Test Voltage	Remarks
Electrical supply (direct current)	12V	±10%	11.2V / 9.8 V	No damage or failure in the equipment.

13	TABLA: Insulation resistance test			P
test voltage applied between:	Minimum value before (MΩ)	Measured value (MΩ)	Minimum value after (MΩ)	Measured value (MΩ)
Live parts and insulating enclosure	10	40	1	18
supplementary information				
Test voltage: 24V Protective earth connected to ground.				

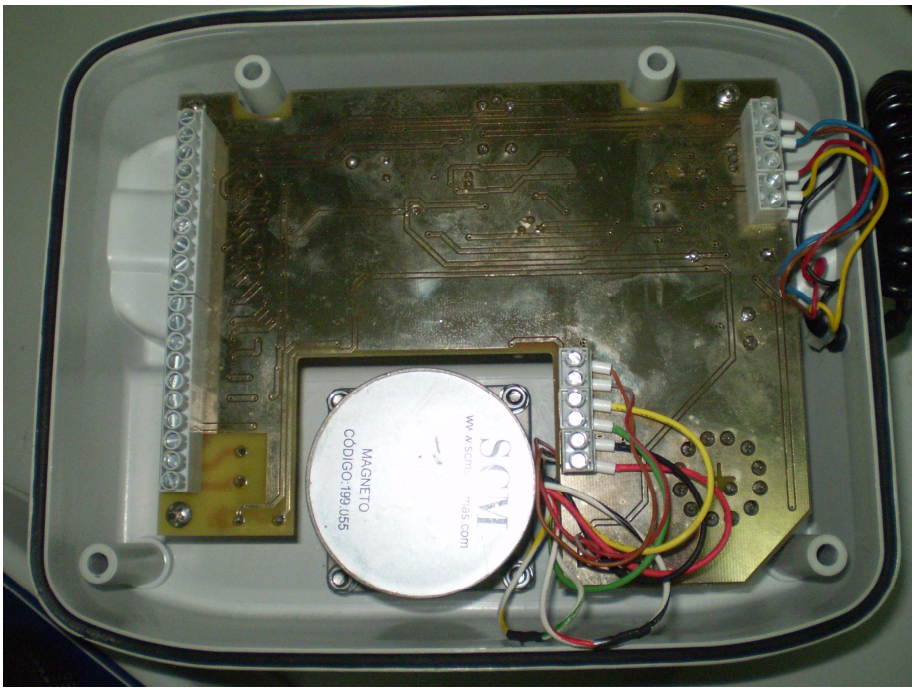
14.	TABLE: electric strength tests, impulse tests and voltage surge tests	P

test voltage applied between:	test voltage (V)	breakdown Yes / No
Live parts and insulating enclosure	524Vdc	No
supplementary information		
Test voltage a.c. / d.c.		

ANNEX B: Photographs

GENERAL VIEW

GENERAL VIEW



INSIDE VIEW

GENERAL VIEW

CERTIFICADO DE ENSAYO

TEST CERTIFICATE

Nº: 28859CSE.004

Producto **Product**	: :	**SISTEMA DE MEGAFONÍA SERIE PA** **PUBLIC ADDRESS SYSTEM PA SERIES**
Marca comercial **Trade Mark**	:	**SCM**
Modelo /Tipo Ref. **Model / Type Ref.**	: :	**SISTEMA DE MEGAFONÍA TIPO PA** **PUBLIC ADDRESS SYSTEM TYPE PA**
Fabricante **Manufacturer**	:	**SCM SISTEMAS, S.L.**
Peticionario **Tested on request of**	:	**SCM SISTEMAS, S.L.**
Otros datos de identificación - n/s **Full identification of the product - s/n**	:	**Amplificador modelo PA-AMP-60. Micrófono modelo PA-MIC-2. Micrófono modelo PA-MIC-3. Altavoz para sistemas de megafonía PA-ALT-T1. Altavoz para sistemas de megafonía PA-ALT-E1. Altavoz para sistemas de megafonía PA-ALT-E2. Altavoz para sistemas de megafonía PA-ALT-E3. Equipo con envolvente metálica y clase I de protección contra choque eléctrico.** **Amplifier model PA-AMP-60. Microphone model PA-MIC-2. Micrphone model PA-MIC-3. Loudspeaker for PA system model PA-ALT-T1. Loudspeaker for PA system model PA-ALT-E1. Loudspeaker for PA system model PA-ALT-E2. Loudspeaker for PA system model PA-ALT-E3. Equipment with metallic enclosure and class I of protection against electrical shock.**
Norma(s) de referencia **Standard(s)**	:	**Germanischer Lloyd: 2003, (Aptdos: 1, 2, 4, 13, 14)** **Germanischer Lloyd: 2003, (Paragraphs: 1, 2, 4, 13, 14)**
Certificado basado en el informe **Test certificate based on the test report**	:	**Nº. 28859RSE.004 FECHA / dated: 2010-10-21**
Resultado **Summary**	:	**CONFORME** **COMPLIANT**

AT4 wireless es un laboratorio de ensayo competente para la realización de los ensayos objeto del presente informe

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

Nota: Este certificado de ensayo sólo es aplicable a los objetos sometidos a ensayo cuya identificación se recoge en el informe en que se basa, ensayados en el modo y fecha(s) declaradas del mismo informe. Por tanto, no implica una certificación de la producción.

Note: This test certificate is only applicable to the unit(s) of the product submitted, shown in the reference report, tested and used in the mode and date shown in the mentioned test report. It does not imply a certification of the production.

Málaga, a

Consultor SE.
SE Consultant

CERTIFICADO DE ENSAYO

TEST CERTIFICATE

Nº: 28859CEA.004

Producto **Product**	:	**SISTEMA DE MEGAFONIA SERIE PA** **PUBLIC ADDRESS SYSTEM PA SERIES**
Marca comercial **Trade Mark**	:	**SCM SISTEMAS, S.L.**
Modelo /Tipo Ref. **Model / Type Ref.**	:	**SISTEMA DE MEGAFONIA TIPO PA** **PUBLIC ADDRESS SYSTEM TYPE PA**
Fabricante **Manufacturer**	:	**SCM SISTEMAS, S.L.**
Peticionario **Tested on request of**	:	**SCM SISTEMAS, S.L.**
Otros datos de identificación - n/s **Full identification of the product - s/n**	:	**Amplificador PA-AMP-60; Microfono PA-MIC-2 ; Micrófono PA-MIC-3 ;Altavoz para sistemas de megafonía PA-ALT-T1; Altavoz para sistemas de megafonía PA-ALT-E1; Altavoz para sistemas de megafonía PA-ALT-E2; Altavoz para sistemas de megafonía PA-ALT-E3;.** **Amplifier PA-AMP-60; Microphone PA-MIC-2 ; Microphone PA-MIC-3 ; Loudspeaker for PA system PA-ALT-T1; Loudspeaker for PA system PA-ALT-E1; Loudspeaker for PA system PA-ALT-E2; Loudspeaker for PA system PA-ALT-E3.**
Norma(s) de referencia **Standard(s)**	:	**- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)** **- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.** **- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.** **- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).** **- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.** **- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic (*)**
Certificado basado en el informe **Test certificate based on the test report**	:	**Nº. 28859REA.004 de fecha / dated on: 2011-01-21**
Resultado **Summary**	:	**CONFORME** **COMPLIANT**

(*)Los resultados del ensayo de niebla salina solo aplican a las muestras M/03 (Ver informe 28859REA.004).
The results of the salt mist test only applied to samples M/03 (See test report 28859REA.004).

AT4 wireless es un laboratorio de ensayo competente para la realización de los ensayos objeto del presente informe.
AT4 wireless is a testing laboratory competent to carry out the tests described in the report.

Nota: Este certificado de ensayo sólo es aplicable a los objetos sometidos a ensayo cuya identificación se recoge en el informe en que se basa, ensayados en el modo y fecha(s) declaradas del mismo informe. Por tanto, no implica una certificación de la producción.
Note: This test certificate is only applicable to the unit(s) of the product submitted, shown in the reference report, tested and used in the mode and date shown in the mentioned test report. It does not imply a certification of the production..

Málaga,

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MÁLAGA, C.I.F. A29 507 456
Registro Mercantil de Málaga,Tomo 1169,
Libro 82, Folio 133, Hoja MA3729

TEST REPORT

REFERENCE STANDARD:

- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)
- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.
- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.
- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).
- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.
- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic.

NIE..... :	28859REA.004
Approved by (name / position & signature) ..... :	Rafael Gonzalez / Consultant
Elaboration date ..... :	2011-01-21
Identification of item tested..... :	PUBLIC ADDRESS SYSTEM PA SERIES
Trademark ..... :	SCM SISTEMAS, S.L.
Model and/or type reference ..... :	PUBLIC ADDRESS SYSTEM TYPE PA
Serial number ..... :	See paragraph “Usage of samples” for details
Features ..... :	Not indicated
Description ..... :	Amplifier model PA-AMP-60
	Microphone model PA-MIC-2
	Microphone model PA-MIC-3
	Loudspeaker for PA system model PA-ALT-T1
	Loudspeaker for PA system model PA-ALT-E1
	Loudspeaker for PA system model PA-ALT-E2
	Loudspeaker for PA system model PA-ALT-E3
Applicant ..... :	SCM SISTEMAS, S.L.
Address..... :	C/ Benjamin Franklin, nº351, nave 6.
	33211 Gijón (Spain)
CIF/NIF/Passport ..... :	B33826058
Contact person:	Guillermo Florez
Telephone / Fax..... :	985356263 / 985348083
e-mail: ..... :	guillermo@scmsistemas.com

Test samples supplier ..... :	SCM SISTEMAS, S.L.
Address ..... :	C/ Benjamin Franklin, nº351, nave 6.
	33211 Gijón (Spain)
CIF/NIF/Passport ..... :	B33826058
Contact person: ..... :	Guillermo Florez
Telephone / Fax..... :	985356263 / 985348083
e-mail: ..... :	guillermo@scmsistemas.com
Manufacturer ..... :	SCM SISTEMAS, S.L.
Address ..... :	C/ Benjamin Franklin, nº351, nave 6.
	33211 Gijón (Spain)
CIF/NIF/Passport ..... :	B33826058
Telephone / Fax..... :	985356263 / 985348083
Test method requested ..... :	Cold
(See appendix A. for details)	Dry Heat
	Damp Heat
	Salt mist
	Vibrations

Standard ..... :

- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)
- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.
- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.
- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).
- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.
- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic.

Non-standardized test method ..... : N/A

Report template No..... : FDT08_12

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Competences and guarantees

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance programme for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the AT4 wireless internal document PODT000.

Usage of samples

Samples undergoing test have been selected by: the client.

Sample M/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
28859C/29	Amplifier	PA-AMP-60	--	2009-10-21
28859C/33	Loudspeaker	PA-ALT-E1	457.201	2009-10-21
28859C/35	Loudspeaker	PA-ALT-E3	457.203	2009-10-21
28859C/37	Loudspeaker	PA-ALT-E2	457.202	2009-10-21
28859C/41	Microphone	PA-MIC-3	--	2009-10-21
28859C/43	Microphone	PA-MIC-2	457.206	2009-10-21
28859C/45	Loudspeaker	PA-ALT-T1	457.204	2009-10-21

1. Sample M/01 has undergone the following test(s):
   Cold test (+5ºC), Dry heat test and Damp heat test.

Sample M/02 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
28859C/29	Amplifier	PA-AMP-60	--	2009-10-21
28859C/33	Loudspeaker	PA-ALT-E1	457.201	2009-10-21
28859C/35	Loudspeaker	PA-ALT-E3	457.203	2009-10-21
28859C/37	Loudspeaker	PA-ALT-E2	457.202	2009-10-21
28859C/41	Microphone	PA-MIC-3	--	2009-10-21
28859C/43	Microphone	PA-MIC-2	457.206	2009-10-21
28859C/45	Loudspeaker	PA-ALT-T1	457.204	2009-10-21

1. Sample M/02 has undergone the following test(s):
   Vibrations test.

Sample M/03 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
28859C/33	Loudspeaker	PA-ALT-E1	457.201	2009-10-21
28859C/35	Loudspeaker	PA-ALT-E3	457.203	2009-10-21
28859C/37	Loudspeaker	PA-ALT-E2	457.202	2009-10-21

1. Sample M/03 has undergone the following test(s):
   Salt mist test and Cold test (-25ºC)

Testing period

The performed test started on 2010-05-11 and finished on 2010-09-15.

The tests have been performed at AT4 wireless.

Environmental conditions

The following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 25 % Max. = 75 %

Summary

Considering the results of the performed test, the item/s under test is/are **IN COMPLIANCE** with the requested specifications specified in the standard.

NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".

Remarks and comments

See Appendix A. Test results.

Testing veredicts

Not applicable .....: NA

Pass .....: P

Fail: F

Not measured .....: NM

TESTS	VERDICT			
	NA	P	F	NM
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 5 Cold. Test A		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 5 Cold. Test B		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 6 Dry heat. Test B.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 7 Damp heat.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 8 Salt mist.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 9 Vibrations. Curve 1.		P		

APPENDIX A: Test result

TEST METHOD REQUESTED

TEST	BASIC STANDARD	REGISTER SOCIETY AND CLAUSE	TEST SEVERITY
Dry Heat	IEC 60068-2-2	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 6.	Test Temperature: +70ºC Duration: 2 h. • The equipment under test is placed in the test chamber at room temperature and remains connected and switched on throughout the test. During the final 60 minutes of the test functional test shall be performed. • Functional test after test at room temperature.
Cold	IEC 60068-2-1	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 5.	Test Temperature: +5ºC Duration: 2 h. • The EUT is placed in the test chamber at room temperature and remains connected but not switched on, during the cooling phase and throughout the test. During the final 60 minutes of the test functional test shall be performed at test temp. • Functional test after test at room temperature and an insulation test.
Cold	IEC 60068-2-1	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 5.	Test Temperature: -25ºC Duration: 2 h. • The EUT is placed in the test chamber at room temperature and remains connected but not switched on, during the cooling phase and throughout the test. During the final 60 minutes of the test functional test shall be performed at test temp. • Functional test after test at room temperature and an insulation test.
Damp Heat	IEC 60068-2-30	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 7.	-Test Temperature: +55ºC -Relative humidity: 95% -Duration: 2 cycles of 24 h each. -Insulation resistance measurement shall be performed before and after Damp Heat test. • The EUT is placed in the test chamber at room temperature and remains connected and switched on throughout the first test cycle. During the second test

TEST	BASIC STANDARD	REGISTER SOCIETY AND CLAUSE	TEST SEVERITY
			cycle the EUT is switched off except for the functional test. • Functional test shall be performed at test temperature within the first 2 hours of the first and the last 2 hours of the second test cycle.
Salt mist	IEC 60068-2-52	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 8.	- Severity level: 1 - Number of sprayings: 4 - Storage period in damp chamber: 7days, after each spraying. - Spray duration: 2 h - Temperature: +25ºC±10ºC. - Saline solution: 5% NaCl - PH value : 6,5 to 7,2 at 20ºC. - Storage temperature: +40ºC. - Storage Humidity: 93%RH. Before commencing the test an insulation resistance measurement shall be taken and a functional test shall be performed. During the test the equipment under test is connected but is not switched on. The test consists of 4 sprayings and 7 days storage period functional tests shall be performed. On completion of the test a functional test is performed and a insulation resistance measurement and the condition of the equipment under test is evaluated (visual inspection)
Vibrations	IEC 60068-2-6	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 9.	**Vibration** -Frequencies: 5 – 100 Hz 5 Hz – 13,2 Hz: 1,0 mm constant displacement. -13,2 Hz – 100 Hz: 0,7 g constant acceleration. -Sweep rate: 1 oct/min. -Axis: 3 (X,Y,Z) -1st Test: Determination of resonance points. -2nd Test: If points of resonance are determined on the equipment under test with an amplification factor Q>2 the test duration is 90 min per resonance frequency, if no at 30 Hz. -Device under test shall be at the rated operational voltage during test.

RESULTS OF DRY HEAT TEST:

Test Severity: 70ºC / 2 h:

Functional test at 70ºC: PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.

RESULTS OF DAMP HEAT CYCLIC TEST:

Functional tests during test : PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF COLD TEST:

Test Severity: +5ºC / 2 h:

Functional test at +5ºC: PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF COLD TEST:

Test Severity: -25ºC / 2 h:

Sample tested: Sample M/03.
Functional test at -25ºC: PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF SALT MIST TEST:

Sample tested: Sample M/03.
Functional tests after each cycle: PASS.
Functional test after test: PASS.
Visual inspection: Red oxide in the support of the loudspeakers: PASS.
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF VIBRATION TEST:

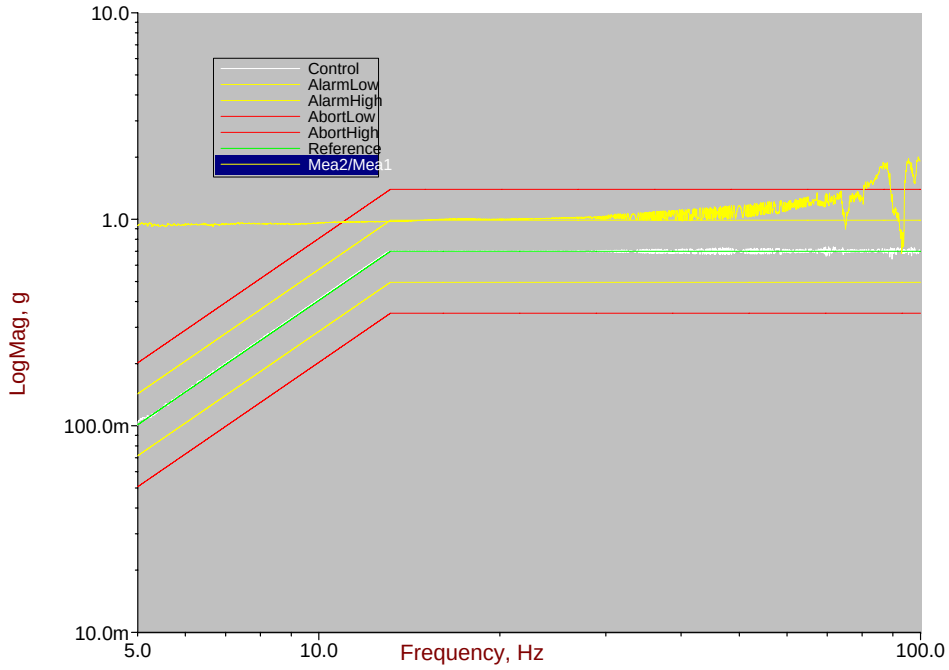
The vibration tests on every axis is composed for two vibration, one vibration is to perform a sweep to search resonance points with Q>2. The second test consist in to vibrate the sample during 90 minutes at resonance frequency, if no resonance frequency has founded, perform the test at 30 Hz. The equipment shall be in operating mode during the test.

Results of Vibration test:
Severity of the test:

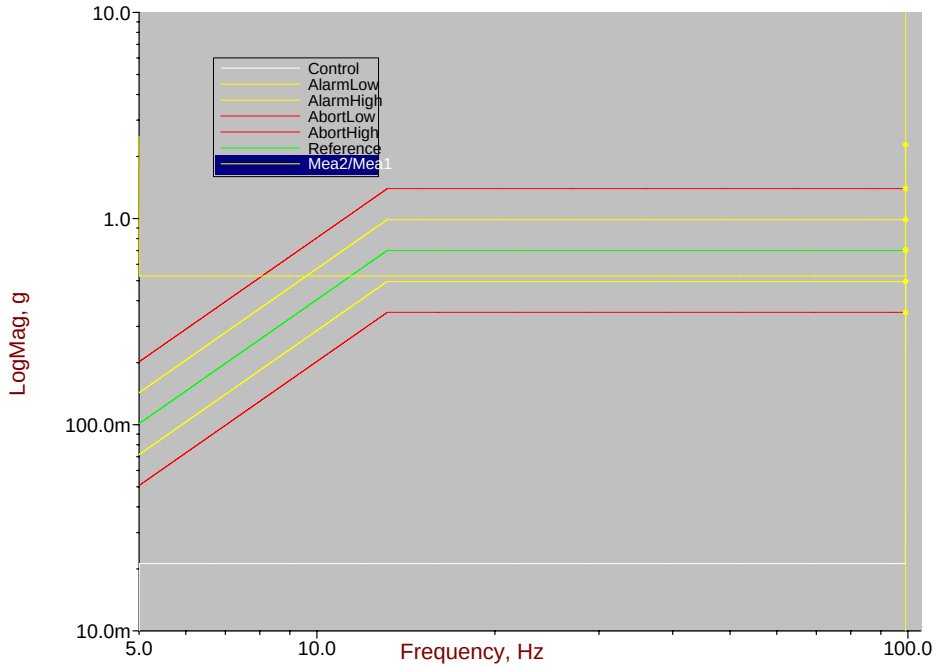
- Frequencies: 5 – 100 Hz
- 5 Hz – 13,2 Hz: 1,0 mm constant displacement.
- 13,2 Hz – 100 Hz: 0,7 g constant acceleration.
- Sweep rate: 1 oct/min.

Axis X:
Resonance searching: Resonance point with Q>2 has appeared during this test at 99.3 Hz
Sine vibration: No fails have appeared during this test (90 min at 99.3 Hz). After test the equipment continues working properly.

Next is the vibration graph where resonance points with Q>2 are observed during the test



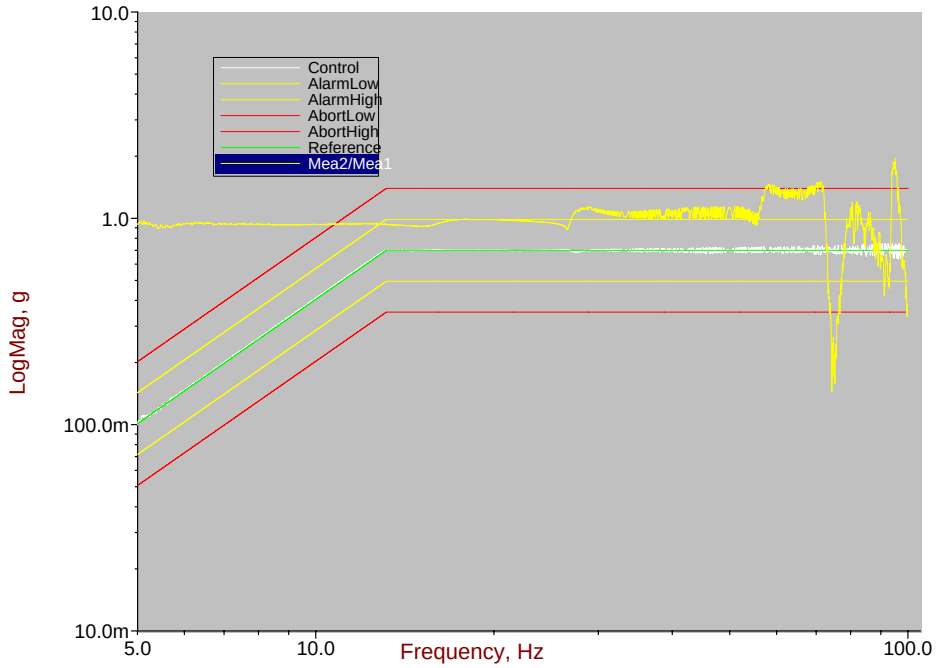
Vibration graph 90 min at 99.3 Hz (Axis X)



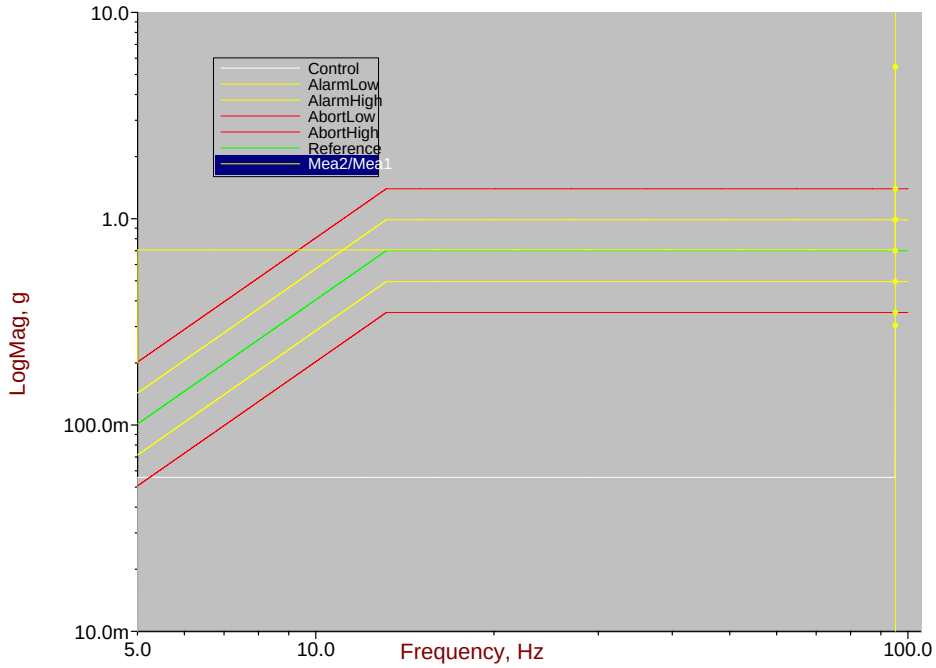
Axis Y:

Resonance searching: Resonance point with Q>2 has appeared during this test at 95.3 Hz
Sine vibration: No fails have appeared during this test (90 min at 95.3 Hz). After test the equipment continues working properly.

Next is the vibration graph where resonance points with Q>2 are observed during the test



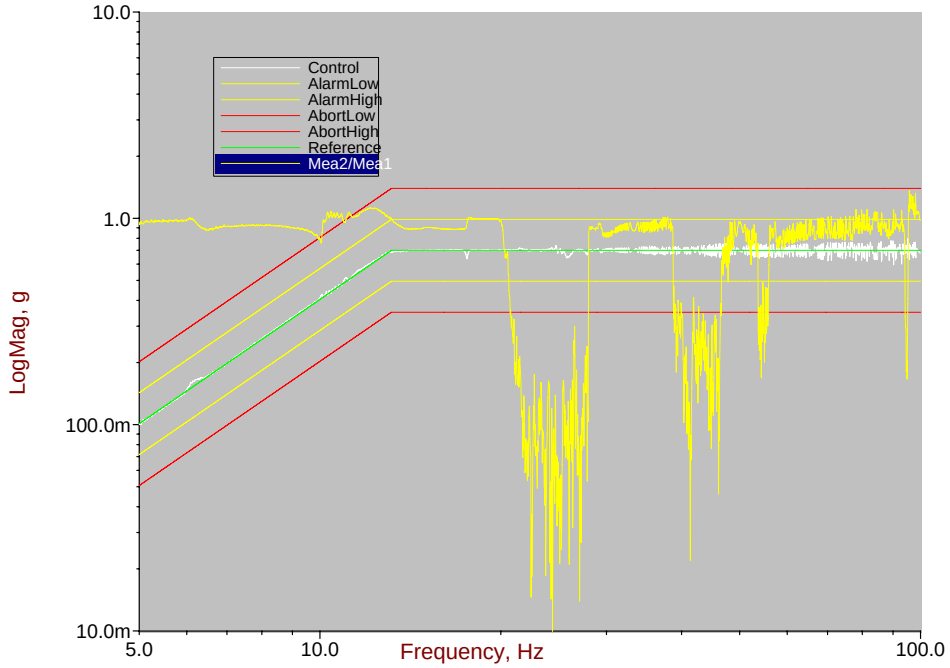
Vibration graph 90 min at 95.3 Hz (Axis Y)



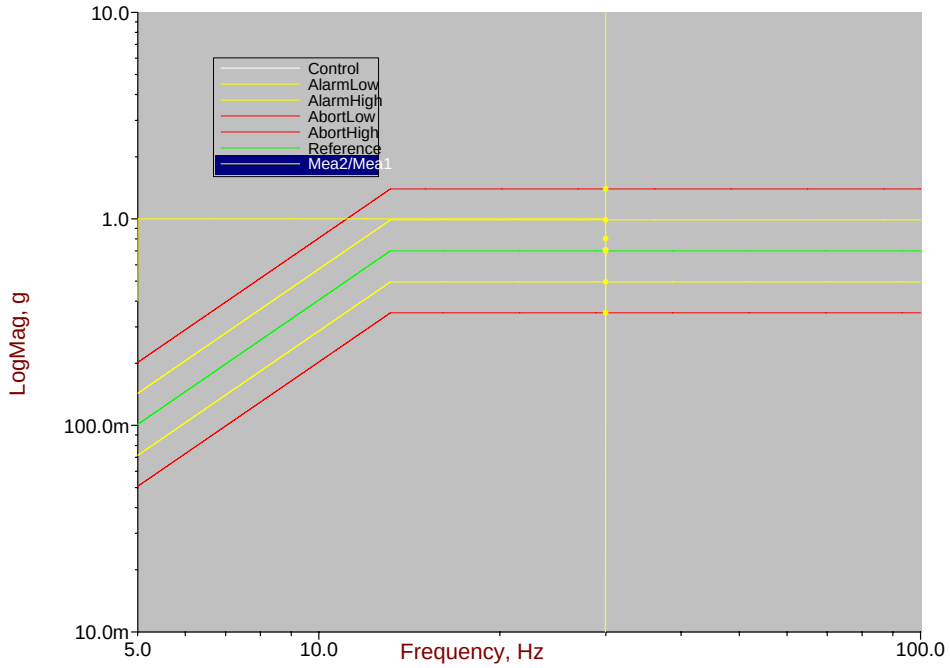
Axis Z:

Resonance searching: No resonance points with Q>2 has appeared during this test.
Sine vibration: No fails have appeared during this test (90 min at 30 Hz). After test the equipment continues working properly.

Next is the vibration graph where resonance points with Q>2 are not observed during the test



Vibration graph 90 min at 30 Hz (Axis Z)



APPENDIX B: Photographs

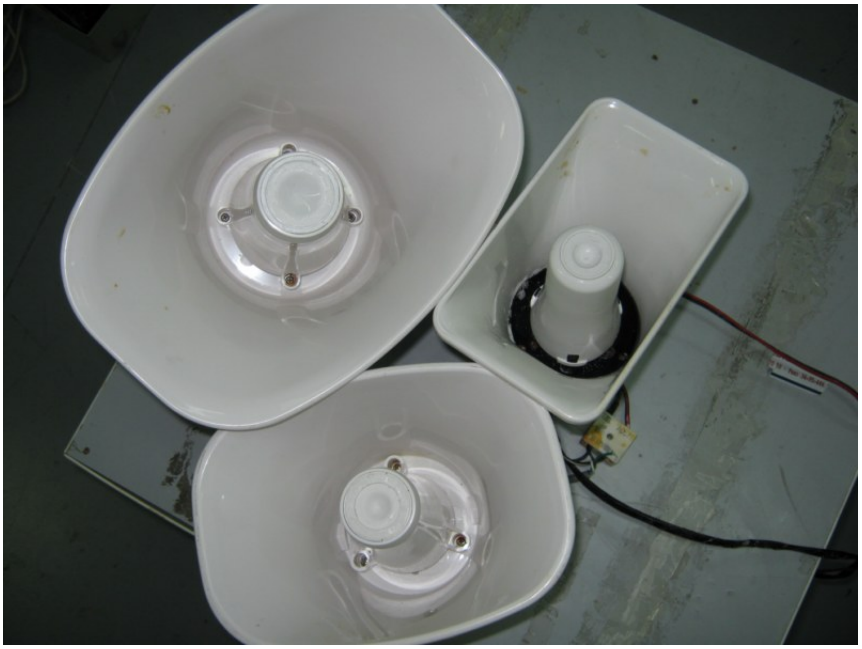
Climatic test:

Dry heat, cold, damp heat

Climatic test:

Dry heat, cold, damp heat

External view of the samples after salt mist test



External view of the samples after salt mist test

Vibration test

Axis X

Vibration test
Axis Y

Vibration test
Axis Z

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TEST REPORT

Germanischer Lloyd: 2003 (Partial)

Test requirements for electrical / Electronic equipment and systems

NIE	28859RSE.004
Approved by (name / position & signature)	Rafael González / Consultant .....
Elaboration date	2010-10-21
Identification of item tested	PUBLIC ADDRESS SYSTEM PA SERIES
Trademark	SCM SISTEMAS, S.L.
Model and/or type reference	PUBLIC ADDRESS SYSTEM TYPE PA
Serial number	NOT SUPPLIED
Features	230Vac, 50/60Hz
Description	Amplifier model PA-AMP-60. Microphone model PA-MIC-2. Micrphone model PA-MIC-3. Loudspeaker for PA system model PA-ALT-T1. Loudspeaker for PA system model PA-ALT-E1. Loudspeaker for PA system model PA-ALT-E2. Loudspeaker for PA system model PA-ALT-E3. Equipment with metallic enclosure and class I of protection against electrical shock.
Applicant	SCM SISTEMAS, S.L.
Address	C/ Benjamín Franklin, nº 351, nave 6 33211
CIF/NIF/Passport	B-33826058
Contact person	Guillermo Florez
Telephone / Fax	+34 985 356 263 / +34 985 348 083
e-mail:	guillermo@scmsistemas.com
Test samples supplier	SCM SISTEMAS, S.L.
Address	C/ Benjamín Franklin, nº 351, nave 6 33211
CIF/NIF/Passport	B-33826058
Contact person:	Guillermo Florez
Telephone / Fax	+34 985 356 263 / +34 985 348 083
e-mail:	guillermo@scmsistemas.com
Manufacturer	SCM SISTEMAS
Address	C/ Libertad 14-2A. C.P.: 33206, Gijón, Asturias. Spain.
CIF/NIF/Passport	B-33826058
Telephone / Fax	+34 985 356 263 / +34 985 348 083

Test method requested
Standard ..... GL 2003
Test procedure ..... POSE000 (General Procedure of Safety Lab)
Non-standardized test method ..... N/A
Report template No..... FSE442_00
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Competences and guarantees

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance programme for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the AT4 wireless internal document PODT000.

Usage of samples

Samples undergoing test have been selected by: **the supplier**

Sample M/01 is composed of the following elements:

Control Number	Description	Manufacturer	Model	Serial Nº	Date of reception
28859/29	Power amplifier	SCM Sistemas	PA-AMP-60	---	2009-10-21
28859/33	Loudspeaker	SCM Sistemas	PA-ALT-E1	457-201	2009-10-21
28859/35	Loudspeaker	SCM Sistemas	PA-ALT-E3	457-203	2009-10-21
28859/37	Loudspeaker	SCM Sistemas	PA_ALT-E2	457-202	2009-10-21

1. Sample M/01 has undergone the test(s) of the paragraph 1 and 2 of the specified in subclause “Test method requested”.

Testing period

The performed test started on 2010-09-13 and finished on 2010-09-15.

The tests have been performed at AT4 wireless laboratory.

Environmental conditions

Date	Temp. Max. (ºC)	Temp. Min. (ºC)	Hum. Max. (%HR)	Hum. Min. (%HR)	Pressure Max. (mbar)	Pressure Min. (mbar)	Limit
2010-09-13	26.3	23.5	63	42	1027	1020	10 - 35 ºC 30 – 90 % 860 – 1060 mbar
2010-09-14	26.4	23.2	59	42	1019	1026	
2010-09-15	26.0	22.5	60	43	1026	1018	

Summary

Considering the results of the performed test according to standard **GL 2003, Paragraphs 1, 2, 4, 13, 14** the item under test is IN COMPLIANCE with the requested specifications specified in the standard.

NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".

Remarks and comments

N/A

Personnel

Tests have been performed by:

· Jesús García

Instruments used

( )	0030	Caliber	( )	1297	Insulation
( )	0055	Probe 100 MHz	( )	1298	Plate 3 mm
( )	0148	Digital multimeter	( )	1299	Dry sand 170-250 cm
(X)	0151	Autotransformer	( )	1300	Top 1 liter
( )	0152	Autotransformer	( )	1301	Burn circuit tester
( )	0153	Leakage tester	( )	1302	Plate 2 mm
( )	0154	Digital multimeter	( )	1304	Rain arc R=600 mm
( )	0155	Digital multimeter	( )	1305	Rain arc R=800 mm
( )	0157	Digital multimeter	( )	1306	Thickness gauge
( )	0158	Digital multimeter	( )	1308	Lampholder E-10
( )	0159	Register UR180	( )	1309	Bushing device
( )	0160	Digital thermometer	( )	1310	Lampholder E-40
( )	0161	Digital thermometer	( )	1311	Lampholder G-13
( )	0162	Digital thermometer	( )	1312	Immersion tank
(X)	0164	Insulation transformer	( )	1313	Rod 625 mm2
(X)	0166	Vatimeter	( )	1314	Threw gauges
( )	0170	Dilectric stength meter	( )	1316	Durability tester
( )	0172	Low resistance meter	( )	1317	Connection tester
( )	0173	Electronic load	( )	1318	Stop plate
( )	0174	Hydra system	(X)	1319	Dielectric strength tester
( )	0175	Electronic load module	( )	1320	Luminaire test corner
( )	0176	Electronic load module	( )	1321	Luminaire test grid
( )	0177	Electronic load module	( )	1322	Impact plate
( )	0179	Electronic scale	( )	1323	Weight 4,5 Kg
( )	0192	Thermocouple	( )	1324	Single-phase ballast
( )	0193	Thermocouple	( )	1325	Manometer 0-1,6 bar
( )	0194	Thermocouple	( )	1326	Manometer 0-1,6 bar
( )	0195	Thermocouple	( )	1328	Manometer 0-10 bar
( )	0196	Thermocouple	( )	1329	Cooker
( )	0229	Power supply unit	( )	1330	Cooker
( )	0230	Control	( )	1331	Cooker
( )	0249	Oscilloscope	( )	1332	Cooker
( )	0421	Thermocouple	( )	1333	Tank
( )	0422	Thermocouple	( )	1334	Tank
( )	0423	Thermocouple	( )	1335	Tank
( )	0424	Thermocouple	( )	1336	Tank
( )	0425	Thermocouple	( )	1337	Weight 5 Kg
( )	0426	Thermocouple	( )	1338	Wooden ball
( )	0427	Thermocouple	( )	1339	Brass disc
( )	0428	Thermocouple	( )	1340	Steel ball D 20 mm
( )	0429	Thermocouple	( )	1341	Lien wire
( )	0430	Thermocouple	( )	1346	Cotton 100 %
( )	0431	Steel ball	( )	1348	Impact hammer callibrator
( )	0432	Gauges	( )	1349	Callibrator of the IH callibrator
( )	0433	Test pin	( )	1350	Luminaries pressure tester
( )	0434	Accessibility probe	( )	1351	Bend wire guide
( )	0435	Test finger	( )	1352	Rain arc R=400 mm
( )	0436	Contact indicator	( )	1353	Rain arc R=200 mm
( )	0437	Dynomometer 0-50 N	( )	1365	Grid 7 mm
( )	0438	Dynomometer 0-100 N	( )	1366	Grid 8 mm
( )	0439	Dynomometer 0-250 N	( )	1367	Cable set
( )	0440	Test hood	( )	1368	Cable set
( )	0441	Ball pressure apparatus	( )	1369	Revolving support
( )	0457	Test probe	( )	1371	Three-phases power supply
( )	0470	Insulation transformer	( )	1373	Wire
( )	0471	Insulation transformer	( )	1374	Variable resistor
( )	0489	Telecommunication probe	( )	1375	Tin 10 cm
( )	0490	Test probe	( )	1376	Cotton cloth
( )	0493	Test ramp	( )	1377	Tin 10 cm
( )	0497	Leakage measurement	( )	1378	External micrometer
( )	0498	Resistance box	( )	1380	Top 13-15-17 cm
( )	0499	Test pot	( )	1381	Tray 600 mm
( )	0500	Silicone	( )	1382	Edge tester

( )	0503	n-hexane	( )	1403	Deflex tester
( )	0504	Chlohidre anhydride	( )	1404	Solution CLNH 0,1 %
( )	0505	Electronic scale 1-600	( )	1406	Polyester
( )	0507	weight 50 g	(X)	1407	Digital vatimeter
( )	0508	weight 500 g	( )	1409	Immersion resistor
( )	0511	Wrap paper	( )	1419	Talcun dust
( )	0513	Set square	( )	1459	Defibrillator
( )	0514	Metallic rule	( )	1464	Master lamp
( )	0515	Flexometer	( )	1465	Master lamp
( )	0517	Gauze	( )	1466	Master lamp
( )	0518	Cloth	( )	1467	Master lamp
( )	0519	Desecator	( )	1468	Master lamp
( )	0522	Gas-oil	( )	1475	Metallic surface 0,1 m2
( )	0533	Bunsen burner	( )	1480	Climatic chamber
( )	0534	Spoon	( )	1481	Test circuit EN 60601-2-2
( )	0535	Methane gas	( )	1488	Peacemaker filter
( )	0538	Drop support	( )	1490	Test circuit EN 60598-1
( )	0539	PWB scrash tester	( )	1492	Test ballast EN 60928
( )	0542	Ni-cr wire	( )	1493	Test ballast EN 60598
( )	0543	Radiation tester	( )	1506	Peacemaker power supply
( )	0544	Triplex clamp	( )	1510	Nail finger test
( )	0546	Fixing support	( )	1511	Grid 3,4,7,8
( )	0576	Thermocouple	( )	1512	Solution PH 9,21
( )	0577	Thermocouple	( )	1513	Solution PH 4,01
( )	0579	Thermocouple	( )	1514	Solution PH 7,00
( )	0580	Thermocouple	( )	1516	High capacity capacitor
( )	0581	Thermocouple	( )	1550	Chroming rod
( )	0583	Oscilloscope probe x10	( )	1560	Register
( )	0584	Oscilloscope probe x10	( )	1612	High current tester
( )	0585	Static sensor	( )	1615	Glass ball 1-1,4 mm
( )	0586	Vessel	( )	1620	Imact tester (figure 22)
( )	0606	Double switch	( )	1621	Abrasion tester
( )	0607	syringe	( )	1622	Force remoce tester
( )	0610	Weight	( )	1623	Anchorage cable tester
( )	0612	Dinamometer screwdriver	( )	1624	Switch tester
( )	0614	Torque tester	( )	1635	Luxometer
( )	0621	Pulse generator accessory	( )	1636	PV probe
( )	0629	Pulse generator	( )	1653	Leakage tester EN 60598
( )	0640	Saline solution	( )	1654	Laser power and energy tester
( )	0641	Ethylic	( )	1655	Laser tester accesory
( )	0642	Demineralized water	( )	1680	Weight 400 g
( )	0643	Semianechoic top	( )	1681	Test probe
( )	0644	mercury	( )	1682	Test probe
( )	0648	Vacuum pump	( )	1683	Weight 400 g
( )	0650	peacemaker system	( )	1684	Test probe
( )	0652	torque accesory	( )	1685	Test probe
( )	0674	Hydrophone	( )	1686	Test probe
( )	0675	Power amplifier	( )	1687	Test probe
( )	0681	Manometer	( )	1688	Test probe
( )	0737	Luxometer	( )	1689	Test probe
( )	0797	Current clamp	( )	1690	Test probe
( )	0798	Current clamp	( )	1691	Test probe
( )	0799	Current clamp	( )	1692	Test probe
( )	0854	Sinusoidal generator	( )	1693	Test probe
( )	0895	Rubber insulation	( )	1694	Test probe
( )	0938	Climatic chamber	( )	1695	Test probe
( )	0943	Oven	( )	1696	Test probe
(X)	0979	Impact hammer	( )	1697	Test probe
( )	1020	Heating test corner	( )	1698	Test probe
( )	1060	Leakage tester	( )	1699	Test probe
( )	1066	Test ball 75 mm	( )	1700	Test probe
( )	1067	Cylinder rod	( )	1701	Test probe
( )	1068	Glass plate	( )	1702	Test probe
( )	1070	Three-phases switch	( )	1703	Test probe
( )	1078	Resistance box	( )	1704	Weight 250/1000 g
( )	1079	White noise filter	( )	1705	Weight 250/1000 g
( )	1087	Current clamp	( )	1706	Test probe
( )	1088	Current clamp	( )	1707	Edge tester

( )	1089	Current clamp	( )	1708	Small parts cylinder
( )	1096	Leakage tester	( )	1709	Protection device
( )	1098	Impact pendulum	( )	1710	Accessibility gauge
( )	1099	Weight 0,15 Kg	( )	1711	Accessibility gauge
( )	1100	Dinamometer screwdriver	( )	1712	Test gauge
( )	1101	Dinamometer screwdriver	( )	1713	Test gauge
( )	1102	Conic test probe	( )	1714	Bend tester
( )	1105	Rain drop tester	( )	1715	Drop tester
( )	1106	Glowing wire	( )	1716	UV tester
( )	1107	Wire bend tester	( )	1717	Safety tester
( )	1108	Test chain	(X)	1754	Digital register
( )	1109	Ball 50 mm	( )	1759	Ultrasound system
( )	1110	Test rod 2,5x100	( )	1839	Manometer 0-1 bar
( )	1111	Ball 12,5 mm	( )	1841	Manometer 0-1,6 bar
( )	1112	Ball 50 mm with handle	( )	1842	Manometer 0-10 bar
( )	1113	Test rod 1x100	( )	1843	Manometer 0-10 bar
( )	1127	Weight 0,25 Kg	( )	1844	Manometer 5-375 mm HG
( )	1128	Weight 0,5 Kg	( )	1849	Weight 1 Kg
( )	1129	Weight 1.5 Kg	( )	1859	Temperature winding tester
( )	1143	Ammonic chloride	( )	1865	Ultrasound system
( )	1144	Carbon tetrachloride	( )	1870	Low resistance meter
( )	1145	Input tester	( )	1960	Test mandril
( )	1159	Silver wire 0,29 mm	( )	1976	Drill tester
( )	1160	Silver wire 0,39 mm	( )	2039	Spectroradiometer
( )	1161	Silver wire 0,52 mm	( )	2042	Probe 10:1
( )	1162	spraying 12,5 mm	( )	2043	Probe 10:1
( )	1163	spraying 6,3 mm	(X)	2048	Dinamometer spanner 1,5 Nm
( )	1164	Pulse 10 KV generator	( )	2049	Dinamometer spanner 6 Nm
( )	1165	Dielectric strength clamp	( )	2050	Dinamometer spanner 50 Nm
( )	1166	Thermocouple	( )	2055	Lampholder E-14
( )	1167	Weight 500 Gr (20 units)	( )	2056	Lampholder E-14
( )	1168	Spillage tester	( )	2065	Digital termometer
( )	1169	Spray tester	( )	2074	Weight 5 Kg / 10 Kg
( )	1170	Frost tester	( )	2123	Dynamometer
( )	1171	Silver wire box	( )	2133	Lampholder E-27
( )	1172	Lampholder	( )	2134	Lampholder E-27
( )	1173	Lampholder	( )	2135	Test probe 315 gr
( )	1174	Lampholder	( )	2178	Surface 30 x 50 cm
( )	1175	Lampholder	( )	2190	Iron support tester
( )	1176	Thermocouple	( )	2211	Solution PA-ACS.ISO 5
( )	1177	Test grid	( )	2212	Solution PA-ACS-500 G
( )	1178	Test grid	( )	2213	Solution PA-ACS-ISO 50
( )	1194	Calliber 0-350 mm	( )	2299	Lampholder E-14
( )	1195	Angle meter	( )	2300	Lampholder E-14
( )	1196	compass	( )	2323	Test corner
( )	1197	Test rod diammeter 2 mm	(X)	2376	Thermographic camera
( )	1198	Test rod diammeter 3 mm	( )	2464	Three-variable resistor
( )	1199	Test rod diammeter 4 mm	( )	2499	Anemometer
( )	1200	Test probe Fig 6 UNE 20514	( )	2589	Flowmeter
( )	1202	Rain simulator	( )	2590	Current clamp
( )	1204	Drop tester	( )	2602	Three-phase vatimeter
( )	1205	Dust chamber + manometer	( )	2603	Current clamp
( )	1213	CTI tester	( )	2604	Current clamp
( )	1222	Coaxial connector	( )	2619	Digital caliber
( )	1223	Isopropylic Alcohol	( )	2620	Digital multimeter
( )	1224	Methylic alcohol	( )	2621	Digital multimeter
( )	1225	Wire 0,5 mm	( )	2622	Digital multimeter
( )	1226	Weight DIN 51953	( )	2633	Laser tester
( )	1227	Weight 2,3 Kg	( )	2634	Laser tester accessory
( )	1228	Climatic chamber	( )	2635	Laser tester accessory
( )	1238	White pine wood	( )	2749	Impact hammer 2,0 J
( )	1239	syringe	( )	2808	Microscope
( )	1240	Telephone line simulator	( )	2809	Lens
( )	1241	Radius gauge	( )	2810	Lens
( )	1242	Radius gauge	( )	2811	Lens
( )	1243	Radius gauge	( )	2838	Oven
( )	1244	Thickness gauge	( )	2946	Temperature and humidity probe
( )	1266	Odometer	( )	3235	Digital conductivity meter

(X)	1269	Leakage tester	( )	3261	Lampholder E-14
( )	1270	Rain automatic tester	( )	3262	Lampholder E-14
( )	1271	Rain arc R=1000 mm	( )	3263	Lampholder E-27
( )	1272	Leakage tester	( )	3264	Lampholder E-27
( )	1273	Pull/torque tester	( )	3297	DC power supply
( )	1276	Flowmeter	( )	3338	Weight 1 Kg
( )	1277	Fuse tester	( )	3357	Spectroradiometer
( )	1278	Fuse tester	( )	3382	Autotransformer
( )	1279	Fuse tester	( )	3383	Autotransformer
( )	1280	Fuse tester	( )	3384	Autotransformer
( )	1281	Mercury	( )	3385	Autotransformer
(X)	1282	Chronometer	( )	3386	Cooper sheet
( )	1283	Digital control	( )	3387	Scrash tester
( )	1284	Leakage tester	( )	3388	Wooden support
( )	1289	Electronic relay circuit	( )	3389	Wooden support 9 mm
( )	1292	Clanaing product	( )	3390	Cotton cloth 26/28 M2/kg
( )	1293	Acetone	( )	3391	Glue
( )	1294	Distilled water	( )	3392	Impact structure
( )	1295	Caustic sode	( )	3449	Absorbent paper
( )	1296	Ice cube	( )	3456	Temperature and humidity probe
			( )	3476	Bunsen burner support

Testing veredicts

Not applicable ..... :	N/A
Pass ..... :	P
Fail ..... :	F
Not measured ..... :	N/M

Particulars: test item vs. test requirements

Equipment mobility ..... :	Fixed installation
Operating condition..... :	Continuous
Mains supply tolerance (%)..... :	N/A
Tested for IT power systems ..... :	No
IT testing, phase-phase voltage (V) :	N/A
Class of equipment ..... :	Class III
Mass of equipment (kg)..... :	< 1 Kg
Protection against ingress of water ..... :	IP X0

Copy of the marking plate

See annex B

APPENDIX A: Results of test according to GL 2003

GL 2003			
Clause	Requirement – Test	Result – Remark	Verdict
1.	Visual inspection		P
1.1	Test procedure		P
1.2	Test conditions	According to expected environmental condition	P
1.3	General instructions for test performance	No visible damage before the test.	P
1.4	Test result		P
2.	Performance test		P
2.1	Test procedure		P
2.2	Test conditions		P
2.3	General instructions for test performance		P
2.4	Test result		P
4	Power supply variations		P
4.1	Procedure		P
4.2	Test conditions		P
4.3	General instructions for test performance		P
4.4	Test result		P
13.	Insulation resistance		P
13.1	Test procedure		P
13.2	Test conditions	> 65Vdc. 500V	P
13.3	General instructions for test performance		P
13.4	Test results		P
14.	High voltage		P
14.1	Test procedure		P
14.2	Test conditions		P
14.3	General instructions for test performance		P
14.4	Test results		P

4.	TABLE: electrical data (in normal conditions)	P

Test condition	Measured voltage	Deviation	Test Voltage	Remarks
Normal condition	230V	±10%	253 / 207 V	No damage or failure in the equipment.
Normal condition	110V	±10%	121 / 99 V	No damage or failure in the equipment.

13	TABLA: Insulation resistance test	P

test voltage applied between:	Minimum value before the treatment (MΩ)	Measured value (MΩ)	Minimum value after the treatment (MΩ)	Measured value (MΩ)
Live parts and insulating enclosure	100	2000	10	800

supplementary information
Test voltage: 500V Protective earth connected to ground.

14.	TABLE: electric strength tests, impulse tests and voltage surge tests	P

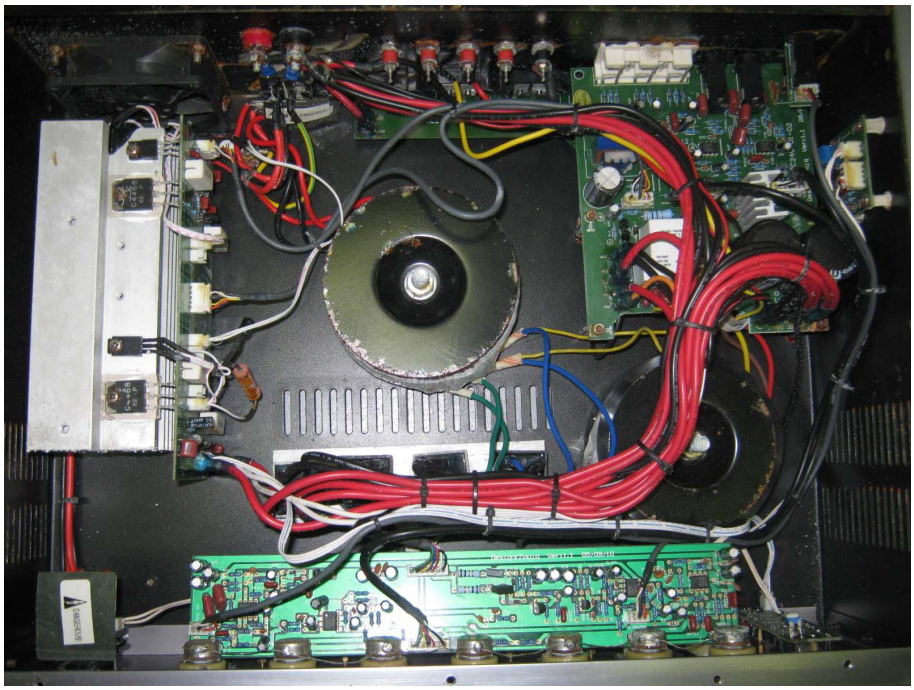
test voltage applied between:	test voltage (V)	breakdown Yes / No
Live parts and insulating enclosure	1500Vac	No

supplementary information
Test voltage a.c. / d.c.

ANNEX B: Photographs

GENERAL VIEW

GENERAL VIEW



INSIDE VIEW

GENERAL VIEW

CERTIFICADO DE ENSAYO

TEST CERTIFICATE

Nº: 28859CSE.002

Producto **Product**	:	**SISTEMA DE TELÉGRAFOS DE ÓRDENES AMÁQUINAS TIPO 2L** : **ENGINE ORDER TELEGRAPH SYSTEM TYPE 2L**
Marca comercial **Trade Mark**	:	**SCM**
Modelo /Tipo Ref. **Model / Type Ref.**	:	**SISTEMA DE TELÉGRAFOS DE ÓRDENES A MÁQUINAS TIPO 2L** : **ENGINE ORDER TELEGRAPH SYSTEM TYPE 2L**
Fabricante **Manufacturer**	:	**SCM SISTEMAS**
Peticionario **Tested on request of**	:	**SCM SISTEMAS**
Otros datos de identificación - n/s **Full identification of the product - s/n**	:	**Telégrafo modelo SC-14-2L, Telégrafo modelo TLB-32-2L, Telégrafo modelo SC-14-CJ-2L. Equipo con envolvente aislante y clase III de protección contra choque eléctrico.** : **Telegraph model SC-14-2L, Telegraph model TLB-32-2L, Telegraph model SC-14-CJ-2L. Equipment with insulating enclosure and class III od protection agaisnt electrical shock.**
Norma(s) de referencia **Standard(s)**	:	**Germanischer Lloyd: 2003, (Aptdos: 1, 2, 4, 13, 14)** **Germanischer Lloyd: 2003, (Paragraphs: 1, 2, 4, 13, 14)**
Certificado basado en el informe **Test certificate based on the test report**	:	**Nº. 28859RSE.002 FECHA / dated: 2010-10-07**
Resultado **Summary**	:	**CONFORME** **COMPLIANT**

AT4 wireless es un laboratorio de ensayo competente para la realización de los ensayos objeto del presente informe

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

Nota: Este certificado de ensayo sólo es aplicable a los objetos sometidos a ensayo cuya identificación se recoge en el informe en que se basa, ensayados en el modo y fecha(s) declaradas del mismo informe. Por tanto, no implica una certificación de la producción.

Note: This test certificate is only applicable to the unit(s) of the product submitted, shown in the reference report, tested and used in the mode and date shown in the mentioned test report. It does not imply a certification of the production.

Málaga, a

Consultor SE.
SE Consultant

CERTIFICADO DE ENSAYO

TEST CERTIFICATE

Nº: 28859CEA.003

Producto **Product**	:	**SISTEMA TALK BACK SERIE CINTER 500** **TALK BACK SYSTEM CINTER 500 SERIES**
Marca comercial **Trade Mark**	:	**SCM SISTEMAS, S.L.**
Modelo /Tipo Ref. **Model / Type Ref.**	:	**SISTEMA TALK BACK TIPO CINTER 500** **TALK BACK SYSTEM TYPE CINTER 500**
Fabricante **Manufacturer**	:	**SCM SISTEMAS, S.L.**
Peticionario **Tested on request of**	:	**SCM SISTEMAS, S.L.**
Otros datos de identificación - n/s **Full identification of the product - s/n**	:	**Central Talk-back CINTER 500; Subestación con altavoz SUB-1; Subestación con micrófono SUB-2; Subestación con toma para auriculares SUB-3; Auriculares con micrófono TB-ACM; Pulsador de llamada PUL-1; Micrófono cuello de cisne MIC-1; Micrófono de mano MIC-3; Altavoz exterior ALT-EXT-1; Altavoz exterior ALT-EXT-2 .** **Command main station Talk-Back CINTER 500; Substation with loudspeaker SUB-1; Substation with microphone plug SUB-2; Substation with headset connection SUB-3; Headset with microphone TB-ACM; Push button box PUL-1; Gooseneck microphone MIC-1; Handheld microphone MIC-3; Exterior loudspeaker ALT-EXT-1; Exterior loudspeaker ALT-EXT-2.**
Norma(s) de referencia **Standard(s)**	:	**- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)** **- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.** **- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.** **- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).** **- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.** **- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic (*)**
Certificado basado en el informe **Test certificate based on the test report**	:	**Nº. 28859REA.003 de fecha / dated on: 2011-01-21**
Resultado **Summary**	:	**CONFORME** **COMPLIANT**

(*)Los resultados del ensayo de niebla salina solo aplican a la muestras M/02 (Ver informe 28859REA.003).
The results of the salt mist test only applied to sample M/02 (See test report 28859REA.003).

AT4 wireless es un laboratorio de ensayo competente para la realización de los ensayos objeto del presente informe.
AT4 wireless is a testing laboratory competent to carry out the tests described in the report.

Nota: Este certificado de ensayo sólo es aplicable a los objetos sometidos a ensayo cuya identificación se recoge en el informe en que se basa, ensayados en el modo y fecha(s) declaradas del mismo informe. Por tanto, no implica una certificación de la producción.
Note: This test certificate is only applicable to the unit(s) of the product submitted, shown in the reference report, tested and used in the mode and date shown in the mentioned test report. It does not imply a certification of the production..

Málaga,

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MÁLAGA, C.I.F. A29 507 456
Registro Mercantil de Málaga,Tomo 1169,
Libro 82, Folio 133, Hoja MA3729

TEST REPORT

REFERENCE STANDARD:

- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)
- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.
- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.
- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).
- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.
- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic.

NIE..... :	28859REA.003
Approved by (name / position & signature) ..... :	Rafael Gonzalez / Consultant
Elaboration date ..... :	2011-01-21
Identification of item tested..... :	TALK BACK SYSTEM CINTER 500 SERIES
Trademark ..... :	SCM SISTEMAS, S.L.
Model and/or type reference ..... :	TALK BACK SYSTEM TYPE CINTER 500
Serial number ..... :	See paragraph “Usage of samples” for details
Features ..... :	Not indicated
Description ..... :	Command main station Talk-Back model CINTER 500
	Substation with loudspeaker model SUB-1
	Substation with microphone plug model SUB-2
	Substation with headset connection model SUB-3
	Headset with microphone model TB-ACM
	Push button box model PUL-1
	Gooseneck microphone model MIC-1
	Handheld microphone model MIC-3
	Exterior loudspeaker model ALT-EXT-1
	Exterior loudspeaker model ALT-EXT-2
Applicant ..... :	SCM SISTEMAS, S.L.
Address..... :	C/ Benjamin Franklin, nº351, nave 6.
	33211 Gijón (Spain)
CIF/NIF/Passport ..... :	B33826058
Contact person:	Guillermo Florez
Telephone / Fax..... :	985356263 / 985348083
e-mail: ..... :	guillermo@scmsistemas.com

Test samples supplier ..... :	SCM SISTEMAS, S.L.
Address ..... :	C/ Benjamin Franklin, nº351, nave 6.
	33211 Gijón (Spain)
CIF/NIF/Passport ..... :	B33826058
Contact person: ..... :	Guillermo Florez
Telephone / Fax..... :	985356263 / 985348083
e-mail: ..... :	guillermo@scmsistemas.com
Manufacturer ..... :	SCM SISTEMAS, S.L.
Address ..... :	C/ Benjamin Franklin, nº351, nave 6.
	33211 Gijón (Spain)
CIF/NIF/Passport ..... :	B33826058
Telephone / Fax..... :	985356263 / 985348083
Test method requested ..... :	Cold
(See appendix A. for details)	Dry Heat
	Damp Heat
	Salt mist
	Vibrations

Standard ..... :

- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)
- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.
- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.
- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).
- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.
- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic.

Non-standardized test method ..... : N/A

Report template No..... : FDT08_12

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Competences and guarantees

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance programme for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor k=2) was calculated according to the AT4 wireless internal document PODT000.

Usage of samples

Samples undergoing test have been selected by: the client.

Sample M/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
28859C/12	Exterior loudspeaker	ALT-EXT-1	457.026 scm	2009-01-29
28859C/15	Substation with headset connection	SUB-3	457.033 scm	2009-01-29
28859C/16	Substation with microphone plug	SUB-2	457.031	2009-01-29
28859C/17	Substation with loudspeaker	SUB-1	457.031 scm	2009-01-29
28859C/19	Push Button box	PUL-1	457.030 scm	2009-01-29
28859C/49	Command main station Talk-Back	CINTER 510	457.001	2009-10-22
28859C/13	Headset with microphone	ACM	456.024 scm	2009-01-29

1. Sample M/01 has undergone the following test(s):

   Cold test, Dry heat test and Damp heat test.

Sample M/02 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
28859C/12	Exterior loudspeaker	ALT-EXT-1	457.026 scm	2009-01-29
28859C/15	Substation with headset connection	SUB-3	457.033 scm	2009-01-29
28859C/16	Substation with microphone plug	SUB-2	457.031	2009-01-29
28859C/17	Substation with loudspeaker	SUB-1	457.031 scm	2009-01-29
28859C/19	Push Button box	PUL-1	457.030 scm	2009-01-29
28859C/49	Command main station Talk-Back	CINTER 510	457.001	2009-10-22

1. Sample M/02 has undergone the following test(s):

   Vibrations test and Salt mist test.

Testing period

The performed test started on 2010-05-11 and finished on 2010-09-15.

The tests have been performed at AT4 wireless.

Environmental conditions

The following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 25 % Max. = 75 %

Summary

Considering the results of the performed test, the item/s under test is/are **IN COMPLIANCE** with the requested specifications specified in the standard.

NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".

Remarks and comments

See Appendix A. Test results.

Testing veredicts

Not applicable .....: NA

Pass .....: P

Fail: F

Not measured .....: NM

TESTS	VERDICT			
	NA	P	F	NM
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 5 Cold. Test B.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 6 Dry heat. Test B.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 7 Damp heat.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 8 Salt mist.		P		
Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003). Section 3B. Paragragh 9 Vibrations. Curve 1.		P		

APPENDIX A: Test result

TEST METHOD REQUESTED

TEST	BASIC STANDARD	REGISTER SOCIETY AND CLAUSE	TEST SEVERITY
Dry Heat	IEC 60068-2-2	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 6.	Test Temperature: +70ºC Duration: 2 h. • The equipment under test is placed in the test chamber at room temperature and remains connected and switched on throughout the test. During the final 60 minutes of the test functional test shall be performed. • Functional test after test at room temperature.
Cold	IEC 60068-2-1	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 5.	Test Temperature: -25ºC Duration: 2 h. • The EUT is placed in the test chamber at room temperature and remains connected but not switched on, during the cooling phase and throughout the test. During the final 60 minutes of the test functional test shall be performed at test temp. • Functional test after test at room temperature and an insulation test.
Damp Heat	IEC 60068-2-30	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 7.	-Test Temperature: +55ºC -Relative humidity: 95% -Duration: 2 cycles of 24 h each. -Insulation resistance measurement shall be performed before and after Damp Heat test. • The EUT is placed in the test chamber at room temperature and remains connected and switched on throughout the first test cycle. During the second test cycle the EUT is switched off except for the functional test. • Functional test shall be performed at test temperature within the first 2 hours of the first and the last 2 hours of the second test cycle.

TEST	BASIC STANDARD	REGISTER SOCIETY AND CLAUSE	TEST SEVERITY
Salt mist	IEC 60068-2-52	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 8.	- Severity level: 1 - Number of sprayings: 4 - Storage period in damp chamber: 7days, after each spraying. - Spray duration: 2 h - Temperature: +25ºC±10ºC. - Saline solution: 5% NaCl - PH value : 6,5 to 7,2 at 20ºC. - Storage temperature: +40ºC. - Storage Humidity: 93%RH. Before commencing the test an insulation resistance measurement shall be taken and a functional test shall be performed. During the test the equipment under test is connected but is not switched on. The test consists of 4 sprayings and 7 days storage period functional tests shall be performed. On completion of the test a functional test is performed and a insulation resistance measurement and the condition of the equipment under test is evaluated (visual inspection)
Vibrations	IEC 60068-2-6	GERMANISCHER LLOYD: Part 7-Ch.2-section 3B- Test 9.	**Vibration** -Frequencies: 5 – 100 Hz 5 Hz – 13,2 Hz: 1,0 mm constant displacement. -13,2 Hz – 100 Hz: 0,7 g constant acceleration. -Sweep rate: 1 oct/min. -Axis: 3 (X,Y,Z) -1st Test: Determination of resonance points. -2nd Test: If points of resonance are determined on the equipment under test with an amplification factor Q>2 the test duration is 90 min per resonance frequency, if no at 30 Hz. -Device under test shall be at the rated operational voltage during test.

RESULTS OF DRY HEAT TEST:

Test Severity: 70ºC / 2 h:

Functional test at 70ºC: PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.

RESULTS OF DAMP HEAT CYCLIC TEST:

Functional tests during test : PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF COLD TEST:

Test Severity: -25ºC / 2 h:

Functional test at -25ºC: PASS.
Functional test after test: PASS.
Visual inspection: No defects have appeared: PASS.
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF SALT MIST TEST:

Sample tested: Sample M/02.
Functional tests after each cycle: PASS.
Functional test after test: PASS.
Visual inspection:
Sample 28859C/12: No defects have appeared: PASS.
Sample 28859C/15: No defects have appeared: PASS
Sample 28859C/16: No defects have appeared: PASS
Sample 28859C/17: No defects have appeared: PASS
Sample 28859C/49: It is not possible to see the display (humidity in the plastic part that protect the display) but the equipment works properly : PASS
Insulation resistance test before test: PASS
Insulation resistance test after test: PASS

RESULTS OF VIBRATION TEST:

The vibration tests on every axis is composed for two vibration, one vibration is to perform a sweep to search resonance points with Q>2. The second test consist in to vibrate the sample during 90 minutes at resonance frequency, if no resonance frequency has founded, perform the test at 30 Hz. The equipment shall be in operating mode during the test.

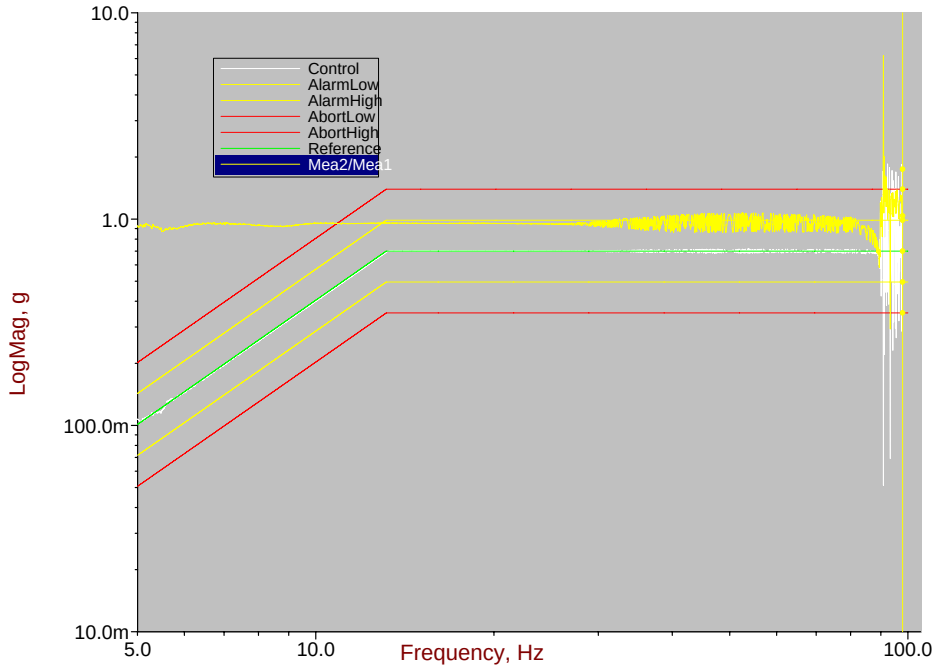
Results of Vibration test:

Severity of the test:

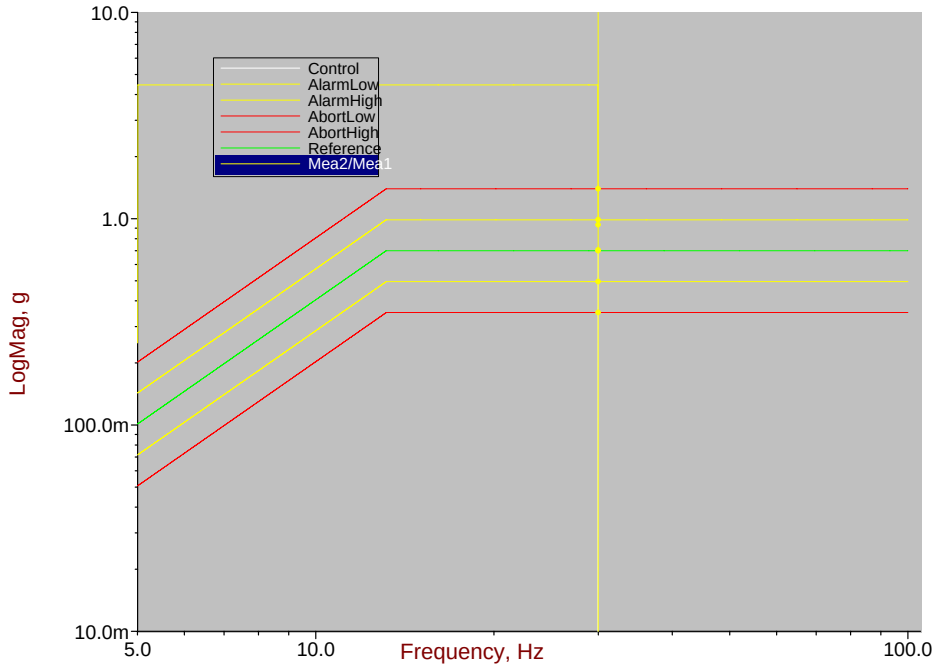
- Frequencies: 5 – 100 Hz
- 5 Hz – 13,2 Hz: 1,0 mm constant displacement.
- 13,2 Hz – 100 Hz: 0,7 g constant acceleration.
- Sweep rate: 1 oct/min.

Axis X:
Resonance searching: No resonance points with Q>2 has appeared during this test.
Sine vibration: No fails have appeared during this test (90 min at 30 Hz). After test the equipment continues working properly.

Next is the vibration graph where resonance points with Q>2 are not observed during the test



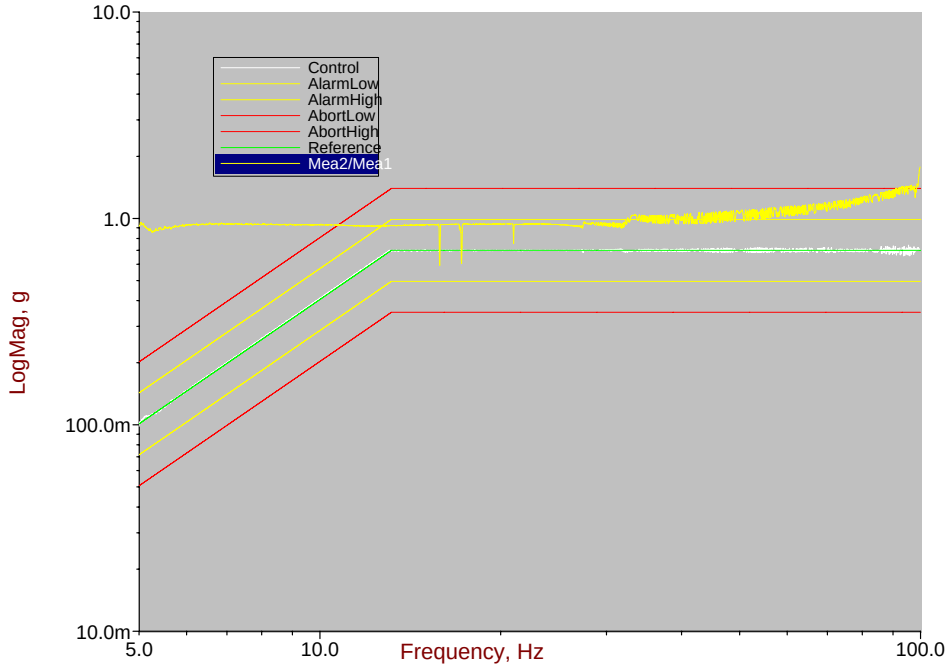
Vibration graph 90 min at 30 Hz (Axis X)



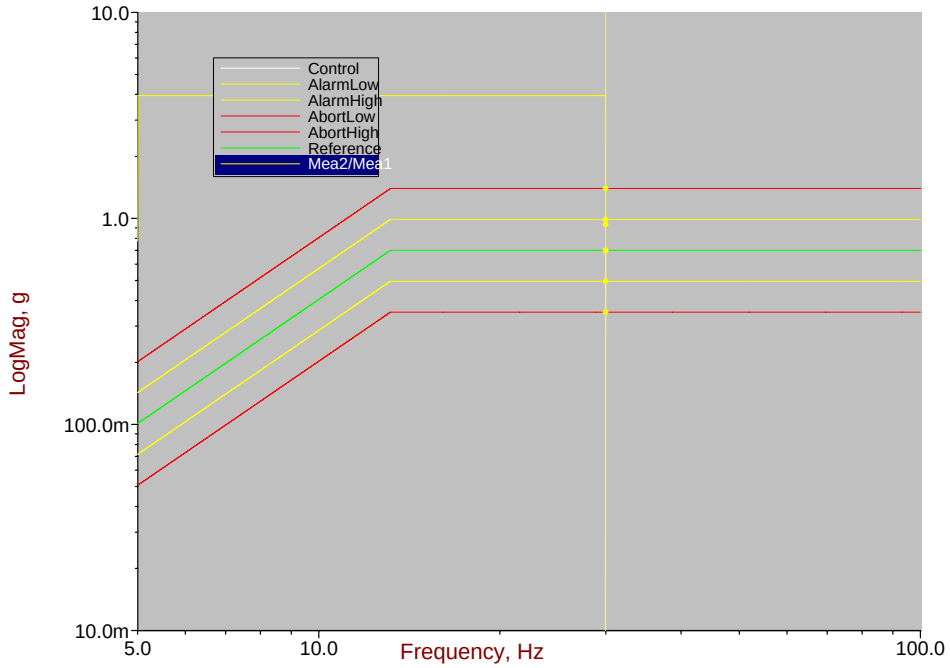
Axis Y:

Resonance searching: No resonance points with Q>2 has appeared during this test.
Sine vibration: No fails have appeared during this test (90 min at 30 Hz). After test the equipment continues working properly.

Next is the vibration graph where resonance points with Q>2 are not observed during the test



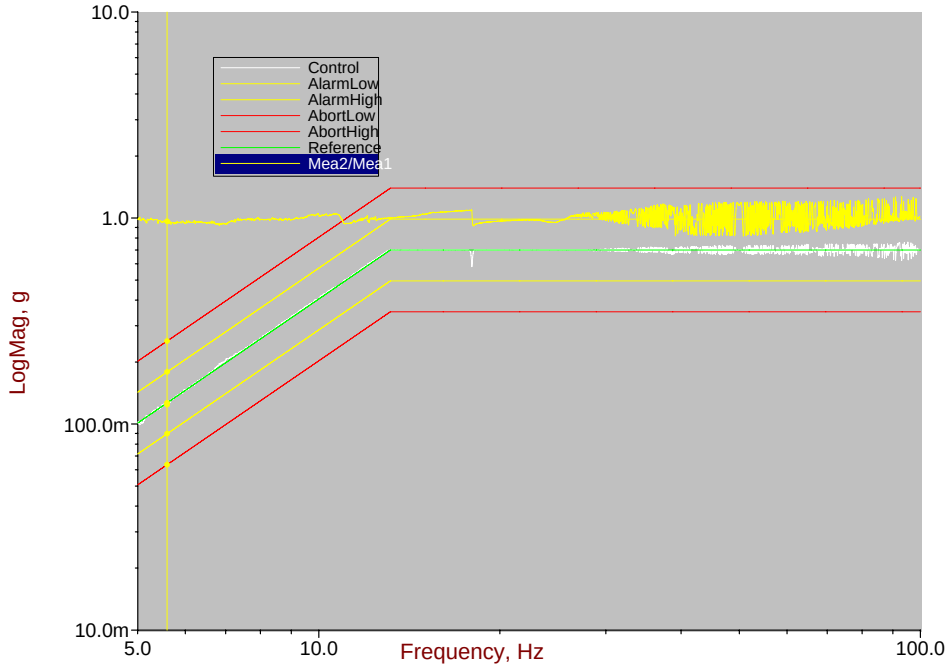
Vibration graph 90 min at 30 Hz (Axis Y)



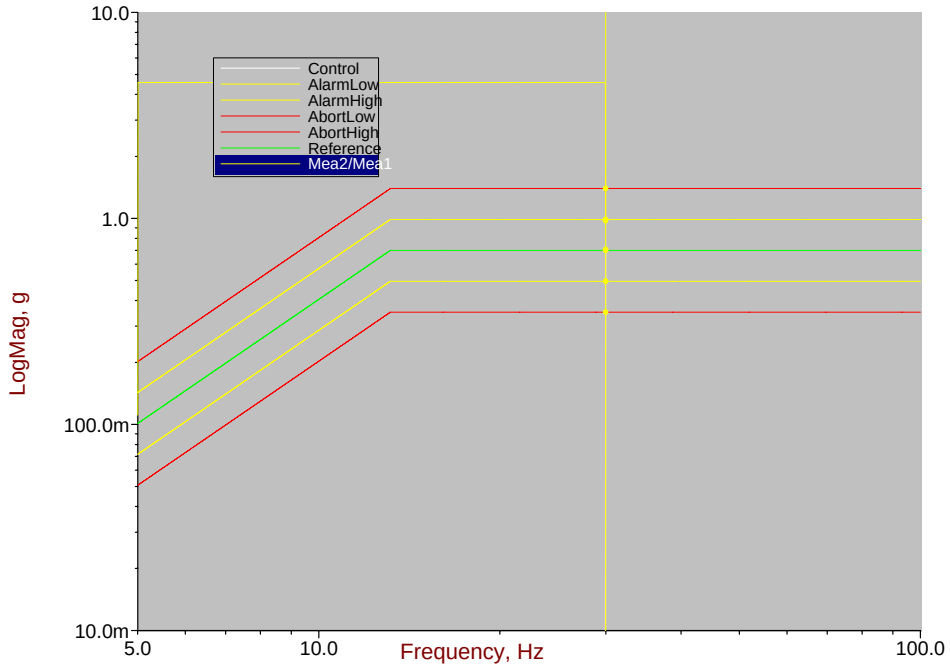
Axis Z:

Resonance searching: No resonance points with Q>2 has appeared during this test.
Sine vibration: No fails have appeared during this test (90 min at 30 Hz). After test the equipment continues working properly.

Next is the vibration graph where resonance points with Q>2 are not observed during the test



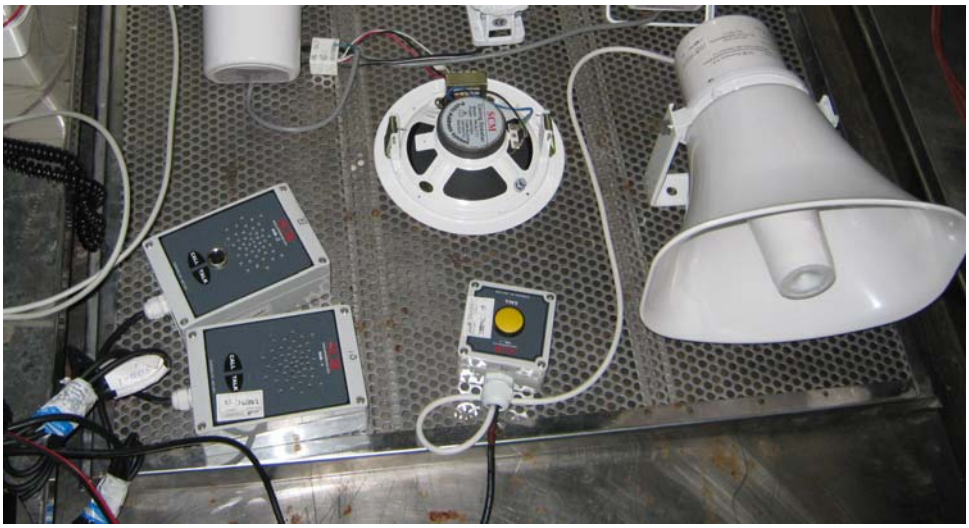
Vibration graph 90 min at 30 Hz (Axis Z)



APPENDIX B: Photographs

Climatic test:

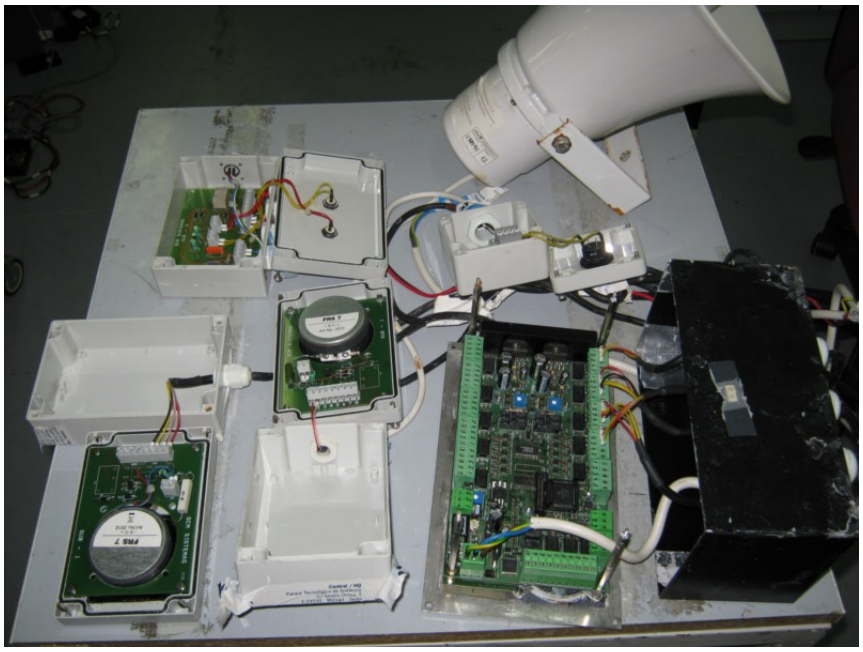
Dry heat, cold, damp heat



Climatic test:

Dry heat, cold, damp heat

Interior view of the samples after salt mist test



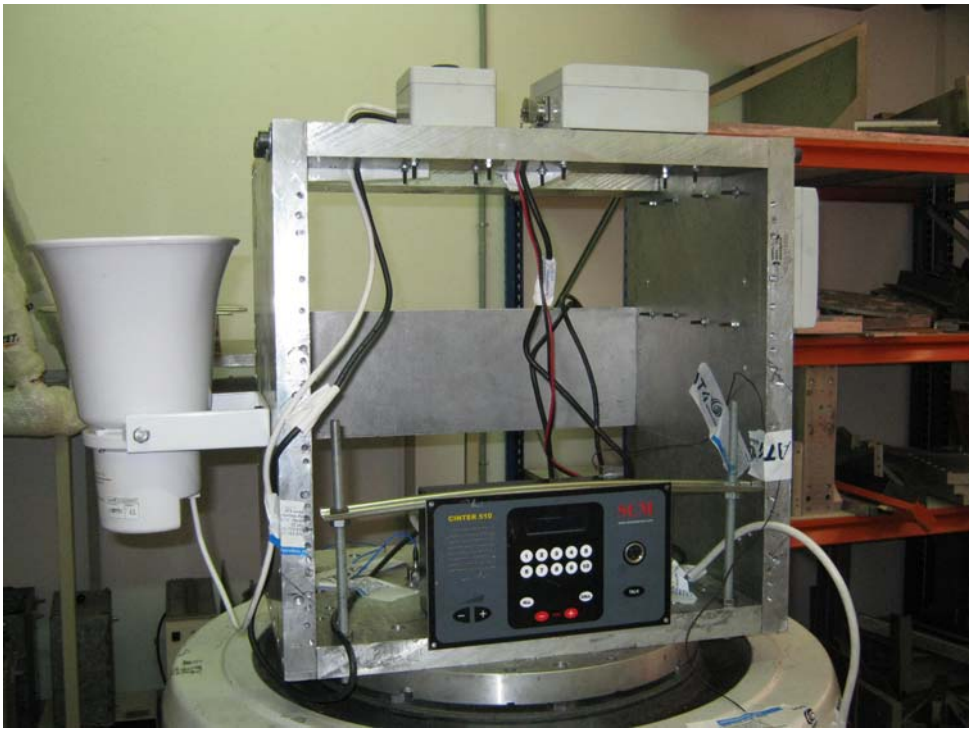
External view display after salt mist test

Vibration test

Axis X

Vibration test
Axis Y

Vibration test
Axis Z



AT4 wireless S.A.
Parque Tecnológico de Andalucía,
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Registro Mercantil Tomo 3693 Libro 2604
Folio 174 Hoja MA3729

ENAC ENSAYOS Nº 51/LE203

INFORME DE ENSAYO

NORMA DE REFERENCIA: Germanischer Lloyd. Edición 2003.

Rules for classification and Construction.

VI Additional Rules and Guidelines.

7 Guidelines for the performance of Type Approvals.

2 Test Requirements for Electrical / Electronic Equipment and Systems.

NIE ..... :	28859IEM.002
Aprobado por (nombre / cargo y firma) ..... :	Rafael López EMC Manager
Fecha de realización ..... :	2009-04-20
Identificación del objeto ensayado ..... :	SISTEMA DE TELEGRAFOS DE ORDENES A MAQUINAS
Marca ..... :	SCM
Modelo y/o referencia tipo ..... :	SISTEMA DE TELEGRAFOS DE ORDENES A MAQUINAS TIPO 2L
Número de serie ..... :	S/N
Descripción..... :	Se enviaron dos sistemas de telégrafos compuestos por: 1ª Entrega: Transmisor-receptor 1 modelo SC-14-2L Receptor-transmisor 1 modelo TLB-32-2L Receptor-transmisor 2 modelo SC-14-CJ-2L 2ª Entrega: Transmisor-receptor 1 modelo SC-14-2L Receptor-transmisor 1 modelo TLB-32-21
Peticionario ..... :	SCM SISTEMAS
Dirección ..... :	C/ Libertad 14-2a C.P. 33206. Gijón. Asturias. España
CIF/NIF/Pasaporte..... :	B-33826058
Persona de contacto / Cargo ..... :	Guillermo Florez / Luis Calleja
Teléfono / Fax ..... :	+34 985 356 263 / +34 985 348 083
e-mail: ..... :	Guillermo@scmsistemas.com

Suministrador de las muestras .....:	SCM SISTEMAS
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	C.P. 33206. Gijón. Asturias.
	España
CIF/NIF/Pasaporte .....:	B-33826058
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e-mail: .....:	Guillermo@scmsistemas.com
Fabricante .....:	SCM SISTEMAS
Dirección.....:	C/ Libertad 14-2a
	C.P. 33206. Gijón. Asturias.
	España
CIF/NIF/Pasaporte .....:	B-33826058
Teléfono / Fax .....:	+34 985 356 263 / +34 985 348 083
Método de ensayo solicitado	
Norma.....:	Germanischer Lloyd
Procedimiento de ensayo.....:	PEEM001; PEEM002; PEEM009; PEEM010; PEEM012; PEEM013; PEEM075.
Método de ensayo no normativo .....:	N/A
Formato de informe No.....:	FDT06_14

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Competencia y garantías

AT4 wireless es un laboratorio de ensayo acreditado por la Entidad Nacional de Acreditación (ENAC), para los ensayos indicados en el Certificado Nº 51/LE 203.

AT4 wireless es un laboratorio de ensayo competente, para la realización de los ensayos objeto del presente informe.

Con objeto de asegurar su trazabilidad respecto a otros laboratorios nacionales e internacionales, AT4 wireless tiene establecido un programa de calibración y mantenimiento de sus aparatos de medida, con verificaciones periódicas de sus características técnicas.

AT4 wireless garantiza la fidelidad de los datos que figuran en este informe, que son los resultados de las mediciones, pruebas y ensayos a que se ha sometido el producto presentado, referidos al momento y condiciones que se indican en el mismo.

AT4 wireless garantiza el mantenimiento del secreto profesional por parte de su personal en todo lo relacionado con el desempeño de sus funciones. Todos los datos referentes al objeto ensayado y al ensayo en sí mismo, serán tratados de manera confidencial.

Condiciones generales

1. Este informe sólo está referido a los objetos sometidos a ensayo.
2. Este informe de ensayo no constituye o implica, por sí mismo, una aprobación del producto por un organismo de certificación ni por cualquier otro organismo.
3. El presente documento forma una unidad indivisible y no puede ser reproducido parcialmente sin la aprobación por escrito de AT4 wireless.
4. El presente informe de ensayo no puede ser usado ni total ni parcialmente con fines de promoción o publicitarios sin autorización escrita de AT4 wireless y del organismo acreditador, en su caso.

Incertidumbre

Para el cálculo de incertidumbres (factor k=2) se ha aplicado el método expuesto en el siguiente documento PODT000.

Utilización de las muestras

La muestra que se ha sometido a ensayo ha sido seleccionada por: SCM SISTEMAS

La muestra **M/01** se compone de los siguientes elementos:

Nº control	Descripción	Fabricante	Modelo	Nº serie	Fecha recepción
28859/01	Telégrafo de órdenes a máquinas	SCM SISTEMAS	SC-14-CJ-2L	---	2009-01-27
28859/02	Telégrafo de órdenes	SCM SISTEMAS	TLB-32-2L	---	2009-01-27
28859/03	Telégrafo de órdenes a máquinas	SCM SISTEMAS	SC-14-2L	---	2009-01-27

La muestra **M/05** es la muestra M/01 añadiendo un filtro PREFILTER PF FFH1Z a la alimentación del puente de gobierno.

La muestra **M/07** es la muestra M/05 añadiendo un condensador de 470 µF entre el hilo positivo y negativo de la salida del relé hacia la cámara de control.

La muestra **M/12** es una nueva muestra enviada por el cliente con todas las modificaciones anteriores, se compone de los siguientes elementos:

Nº control	Descripción	Fabricante	Modelo	Nº serie	Fecha recepción
28859/01	Telégrafo de órdenes a máquinas	SCM SISTEMAS	SC-14-CJ-2L	---	2009-01-27
28859/22	Panel grande	SCM SISTEMAS	---	---	2009-02-11
28859/24	Teléfono	SCM SISTEMAS	AU-MAG	Nº1	2009-02-11

Además en la muestra M/12 se han apantallado las líneas de salida a relés y se conecta a tierra la pantalla, se añaden cuatro diodos supresores SMT33CA entre cada par de líneas de salida a relés.

Muestra **M/13** es la muestra M/12 desactivando la intermitencia de la lámpara.

Fecha de realización de los ensayos

El ensayo cuyos resultados se exponen en este informe comenzó el 2009-01-28 y finalizó el 2009-03-20.

El ensayo al que se refiere este informe se ha realizado en las instalaciones de AT4 wireless.

Condiciones ambientales

En la cámara de control no se excedieron los siguientes límites a lo largo del ensayo:

Temperatura	Min. = 15 ºC Max. = 35 ºC
Humedad Relativa	Min. = 20 % Max. = 80 %
Efectividad de Apantallamiento	> 100 dB
Aislamiento eléctrico	> 10 kΩ
Resistencia a tierra de referencia	< 0,5 Ω

En la cámara semianecoica (21 metros x 11 metros x 8 metros) no se excedieron los siguientes límites a lo largo del ensayo:

Temperatura	Min. = 15 ºC Max. = 30 ºC
Humedad Relativa	Min. = 45 % Max. = 60 %
Presión Atmosférica	Min. = 860 mbar Max. = 1060 mbar
Efectividad de Apantallamiento	> 100 dB
Aislamiento eléctrico	> 10 kΩ
Resistencia a tierra de referencia	< 0,5 Ω
Atenuación del sitio de ensayo (NSA)	< + / - 4 dB @ 10 m de distancia entre EBP y antena receptora, de 30 MHz a 1000 MHz.
Uniformidad de campo	Entre 0 y 6 dB @ más que 75 % de la superficie iluminada, de 26 MHz a 1000 MHz.

En la cámara conducida no se excedieron los siguientes límites a lo largo del ensayo:

Temperatura	Min. = 15 ºC Max. = 30 ºC
Humedad Relativa	Min. = 45 % Max. = 60 %
Presión Atmosférica	Min. = 860 mbar Max. = 1060 mbar
Efectividad de Apantallamiento	> 100 dB
Aislamiento eléctrico	> 10 kΩ
Resistencia a tierra de referencia	< 0,5 Ω

Resumen

A la vista de los resultados del ensayo indicados, correspondientes a la Norma **Germanischer Lloyd, Rules for Classification and Construction, VI Additional Rules and Guidelines, 7 Guidelines for the Performance of Type Approvals, 2 Test Requirements for Electrical / Electronic Equipment and Systems** el objeto sometido a dicho ensayo está **CONFORME** en todas las pruebas que se han solicitado, indicadas en la norma.

NOTA: El presente informe de ensayo sólo es aplicable a los objetos sometidos a ensayo cuya identificación se recoge en la página 1 de este documento, presentados a ensayo en la(s) fecha(s) declaradas en el apartado "UTILIZACIÓN DE LAS MUESTRAS, FECHA DE REALIZACIÓN DE LOS ENSAYOS Y CONDICIONES AMBIENTALES".

Observaciones y Comentarios

Los ensayos han sido realizados por los técnicos: José Carlos Luque, Antonio Ruiz, José Manuel Márquez y Margarita Haro.

La incertidumbre global del sistema de medida, aplicable a la medida de perturbación conducida en el rango de frecuencias de 0,15 a 30 MHz, es de I=± 3.73 dB para medidas en cuasi pico, I=± 3.61 dB para medidas en pico (K=2).

La incertidumbre global del sistema de medida, aplicable a la medida del campo perturbador radiado en el rango de frecuencias de 30 a 1000 MHz, es de es de I=± 5.79 dB para medidas en cuasi pico, I=± 5.79 dB para medidas en pico (K=2).

Veredictos de ensayo

Ensayo no aplicable al objeto de ensayo .....:	N/A
El objeto de ensayo C los requisitos .....:	C
El objeto de ensayo no C los requisitos.....:	N/C
El objeto de ensayo no ha sido medido .....:	N/M

APÉNDICE A: Resultados de las medidas

CONTENIDO DEL APÉNDICE A:

DESCRIPCIÓN DE MODOS DE OPERACIÓN 9
CRITERIOS DE FALLO PARA ENSAYOS DE INMUNIDAD 9
MONITORIZACIÓN PARA ENSAYOS DE INMUNIDAD 10
EMISIÓN CONDUCIDA. MEDIDA DE LA TENSIÓN PERTURBADORA CONTÍNUA 11
EMISIÓN RADIADA. MEDIDA DEL CAMPO PERTURBADOR RADIADO. 14
INMUNIDAD RADIADA FRENTE A CAMPOS DE RF 21
INMUNIDAD CONDUCIDA A ALTA FRECUENCIA 22
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DESCRIPCIÓN DE MODOS DE OPERACIÓN

Los modos de operación descritos en este apartado constituyen una funcionalidad de la muestra bajo ensayo por sí misma. Cada modo de operación lleva asociado un criterio de fallo para los ensayos de inmunidad que le aplicasen y una monitorización para garantizar el cumplimiento de los mismos.

En la tabla siguiente aparecen relacionados los modos de operación utilizados por las muestras ensayadas a las que está referido el presente informe.

MODO DE OPERACIÓN	DESCRIPCIÓN
MO#01	EBP ON. Orden activada. Sirena activada.

CRITERIOS DE FALLO PARA ENSAYOS DE INMUNIDAD

Criterio de fallo A:
El EUT seguirá continuar funcionando según lo previsto durante y después del ensayo. No se permite ninguna degradación del funcionamiento o pérdida de función, como define el estándar relevante del equipo y la especificación técnica publicada por el fabricante.

Criterio de fallo B:
El aparato deberá continuar en funcionamiento según lo previsto después del ensayo. Ninguna degradación de funcionamiento o pérdida de función está permitida, como se define en el estándar relevante del equipo y las especificaciones técnicas publicadas por el fabricante. Durante el ensayo, una degradación, pérdida de función o funcionamiento, la cual es auto-recuperable está permitida, pero no se permiten cambios en el estado de operación actual o en los datos guardados.

Criterio de fallo C:
Degradaciones temporales, perdidas de función o funcionamiento están permitidas durante el ensayo, a condición de que la función sea auto-recuperable, o pueda ser restaurada al final del ensayo mediante una intervención en los controles, como se define en el estándar relevante del equipo y las especificaciones técnicas publicadas por el fabricante.

MONITORIZACIÓN PARA ENSAYOS DE INMUNIDAD

Para cada modo de operación aplicado al equipo bajo ensayo se realiza una monitorización asociada a cada uno de los ensayos de inmunidad, de acuerdo con la tabla siguiente.

MODO DE OPERACIÓN	MONITORIZACIÓN FENÓMENOS CONTINUOS	MONITORIZACIÓN FENÓMENOS TRANSITORIOS
MO#01	Se monitoriza mediante CCTV que la orden activada no cambie, se observa que no varían los led's de estado de los cuadros, la luz y el sonido de la sirena.	Se monitoriza mediante CCTV que la orden activada no cambie, se observa que no varían los led's de estado de los cuadros, la luz y el sonido de la sirena.

EMISIÓN CONDUCIDA. MEDIDA DE LA TENSIÓN PERTURBADORA CONTÍNUA

LÍMITES:	Norma producto :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Norma ensayo :	CISPR 16-1 (1993), CISPR 16-2 (1996)

Emplazamiento	**Rangos de frecuencia**	**Límites**
Puente y zona abierta de cubierta. - EMC 1	10 kHz – 150 kHz 150 kHz – 350 kHz 350 kHz – 30 MHz	96 dBµV – 50 dBµV 60 dBµV – 50 dBµV 50 dBµV
Zona de distribución general de potencia. - EMC 2	10 kHz – 150 kHz 150 kHz – 500 kHz 500 kHz – 30 MHz	120 dBµV – 69 dBµV 79 dBµV 73 dBµV

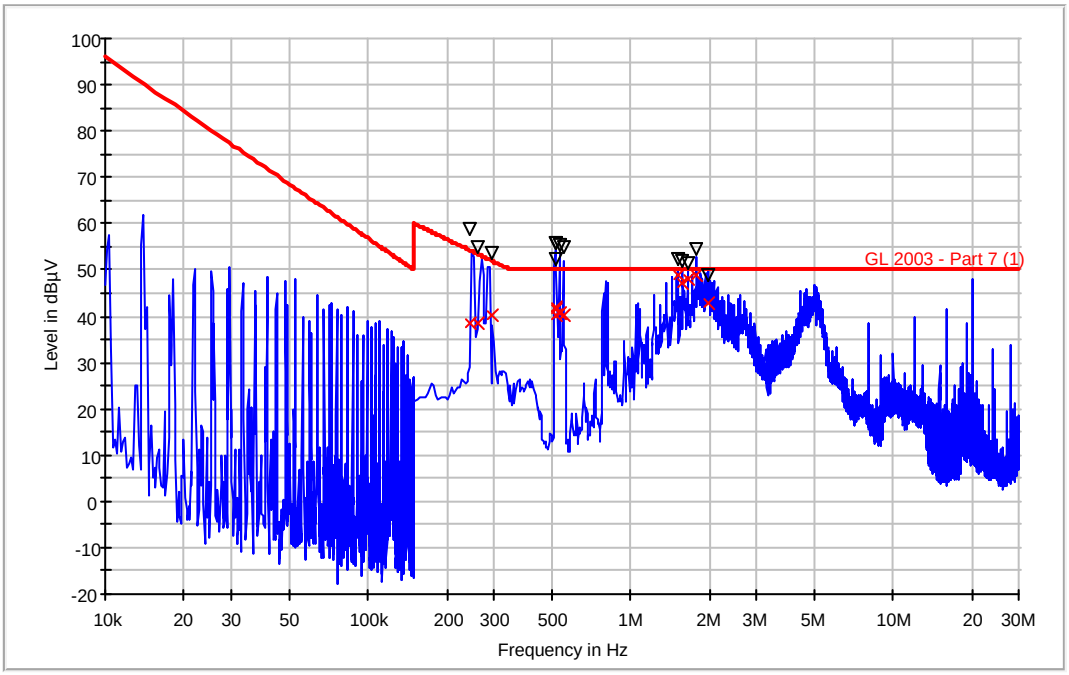
MUESTRAS ENSAYADAS :	M/13
MODOS DE OPERACIÓN ENSAYADOS :	MO#01
RESULTADOS DEL ENSAYO :	CCmmnnhh: CC, Condición de Conducción; mm: nº muestra; nn: modo de operación; hh: hilo

CCmmnnhh	**Descripción**	**Resultado**
CC1301PO	Medida del ruido en hilo Positivo	C
CC1301PO	Medida del ruido en hilo Positivo	C

Emisión conducida continua: CC1301PO	Detector : Pico / Media / Cuasi-pico

Project:	28859Ciem002
Company:	SCM SISTEMAS
Sample:	M/13
Operation Mode:	MO#01
Date:	2009-03-20 12:31
Setup:	EMI conducted
Mode:	EBP ON. Ruido en positivo.

EC CISPR 16-1 10kHz-30MHz



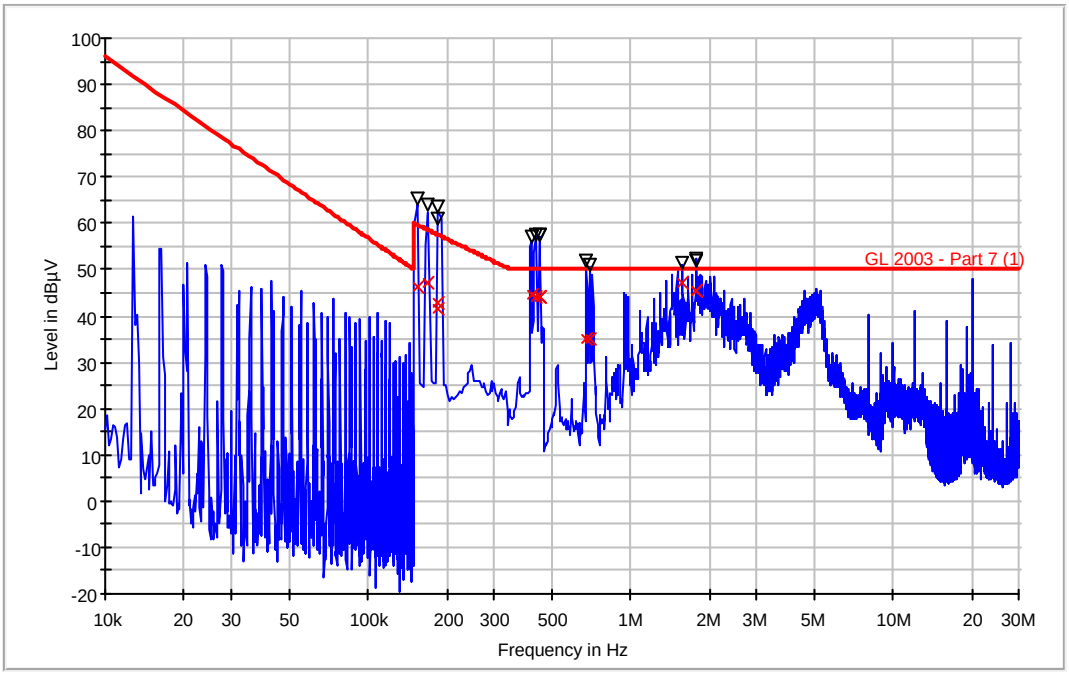
Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Comment
0.518000	54.4	
0.538000	53.6	
0.554000	51.9	
1.438000	48.3	
1.506000	50.0	
1.578000	51.1	
1.646000	50.3	
1.718000	49.0	
1.786000	52.6	
1.854000	49.3	
1.926000	49.4	
1.966000	50.3	

Emisión conducida continua: CC1301NE	Detector : Pico / Media / Cuasi-pico

Project:	28859Ciem002
Company:	SCM SISTEMAS
Sample:	M/13
Operation Mode:	MO#01
Date:	2009-03-20 12:37
Setup:	EMI conducted
Mode:	EBP ON. Ruido en negativo.

EC CISPR 16-1 10kHz-30MHz



Max PK-AVG

Frequency (MHz)	MaxPeak-ClearWrite (dBµV)	Comment
0.154000	63.9	
0.170000	62.3	
0.186000	62.7	
0.418000	56.3	
0.438000	57.3	
0.450000	57.2	
0.682000	50.7	
0.698000	50.7	
1.506000	49.6	
1.578000	50.9	
1.782000	52.4	
1.854000	49.0	

EMISIÓN RADIADA. MEDIDA DEL CAMPO PERTURBADOR RADIADO.

LÍMITES:	Norma producto :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Norma ensayo :	CISPR 16-1 (1993), CISPR 16-2 (1996)

Emplazamiento	**Rangos de frecuencia**	**Límites**
Puente y zona abierta de cubierta. - EMC 1	150 kHz – 300 kHz 300 kHz – 30 MHz 30 MHz – 2 GHz except for: 156 MHz – 165 MHz	80 dBµV/m – 52 dBµV/m 52 dBµV/m – 34 dBµV/m 54 dBµV/m 24 dBµV/m
Zona de distribución general de potencia. - EMC 2	150 kHz – 30 MHz 30 kHz – 100 MHz 100 MHz – 2 GHz except for: 156 MHz – 165 MHz	80 dBµV/m – 50 dBµV/m 50 dBµV/m – 54 dBµV/m 54 dBµV/m 24 dBµV/m

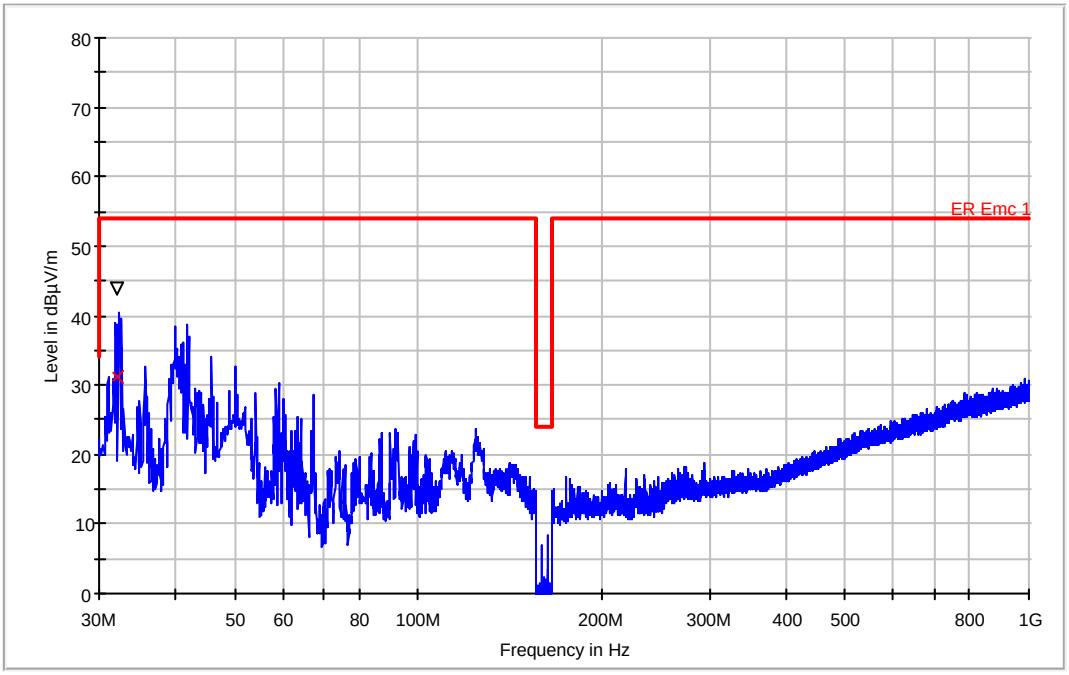
MUESTRAS ENSAYADAS :	M/01
MODOS DE OPERACIÓN ENSAYADOS :	MO#01
RESULTADOS DEL ENSAYO :	**CR**mmnn: CR, Condición de Radiación; mm: nº muestra; nn: modo de operación.

CRmmnn	**Descripción**	**Resultado**
CR0101	30 MHz - 1000 MHz	C
CR0101	150 kHz - 30 MHz Eje X	C
CR0101	150 kHz - 30 MHz Eje Y	C
CR0101	150 kHz - 30 MHz Eje Z	C
CR0101	1 GHz - 2 GHz Polarización Horizontal	C
CR0101	1 GHz - 2 GHz Polarización Vertical	C

Emisión radiada: CR0101 30-1000 MHz

Project:	28859Ciem.002
Company:	SCM Sistemas
Sample:	M/01
Operation Mode:	MO#01
Date:	2009-01-28 16:37
Setup:	EMI radiated
Mode:	EBP ON. Orden activada.

ESIB CISPR 16-1 30-1000MHz Bilog hibrida AMP2193 3m



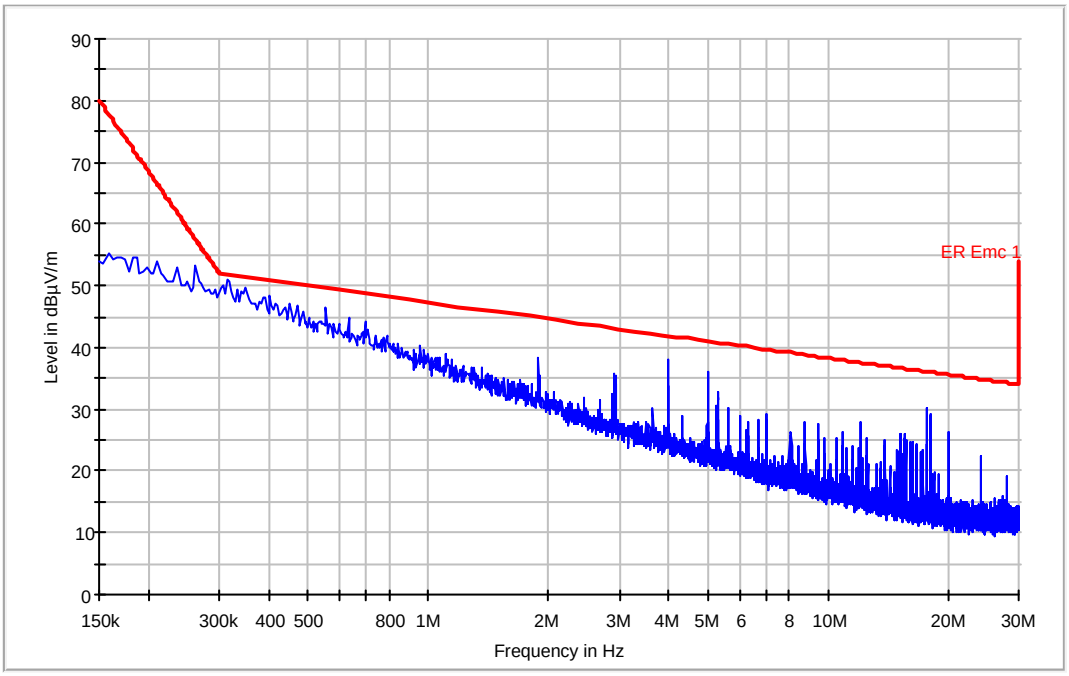
Maximizadas

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)
32.004208	31.1	43.9	131.00	V	299.0

Emisión radiada: CR0101 150 kHz-30 MHz Eje X

Project:	28859Ciem.002
Company:	SCM Sistemas
Sample:	M/01
Operation Mode:	MO#01
Date:	2009-01-28 17:06
Setup:	EMI radiated
Mode:	EBP ON. Orden activada. Eje X.

ER CISPR 16-1 150k-30MHz (H field)



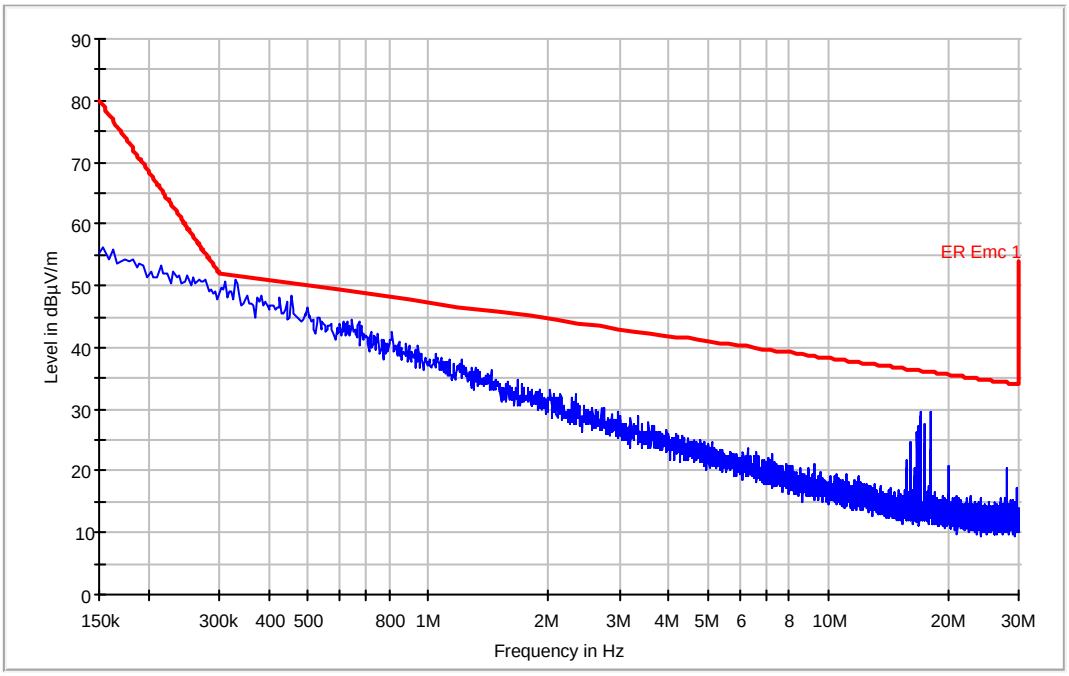
Data reduction Detector 1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)
0.158000	55.4
0.262000	53.3
0.402000	48.4
0.634000	44.9
0.954000	40.4
1.890000	38.3
2.914000	35.7
3.986000	38.0
5.322000	32.7
8.766000	28.0
17.686000	30.4
20.006000	26.4

Emisión radiada: CR0101 150 kHz-30 MHz Eje Y

Project:	28859Ciem.002
Company:	SCM Sistemas
Sample:	M/01
Operation Mode:	MO#01
Date:	2009-01-28 17:10
Setup:	EMI radiated
Mode:	EBP ON. Orden activada. Eje Y.

ER CISPR 16-1 150k-30MHz (H field)



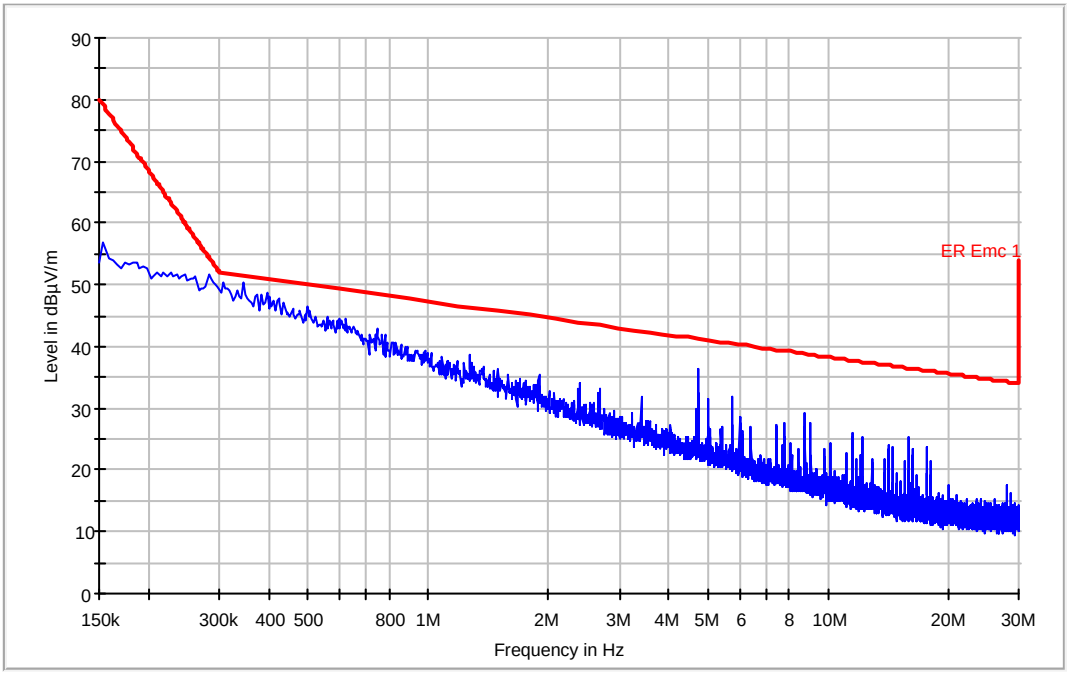
Data reduction Detector 1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)
0.154000	56.3
0.250000	51.6
0.454000	48.5
0.646000	44.4
0.882000	40.5
1.434000	36.4
2.142000	32.4
3.338000	29.0
5.182000	23.8
9.242000	21.0
17.106000	29.7
20.006000	20.9

Emisión radiada: CR0101 150 kHz-30 MHz Eje Z

Project:	28859Ciem.002
Company:	SCM Sistemas
Sample:	M/01
Operation Mode:	MO#01
Date:	2009-01-28 17:16
Setup:	EMI radiated
Mode:	EBP ON. Orden activada. Eje Z.

ER CISPR 16-1 150k-30MHz (H field)



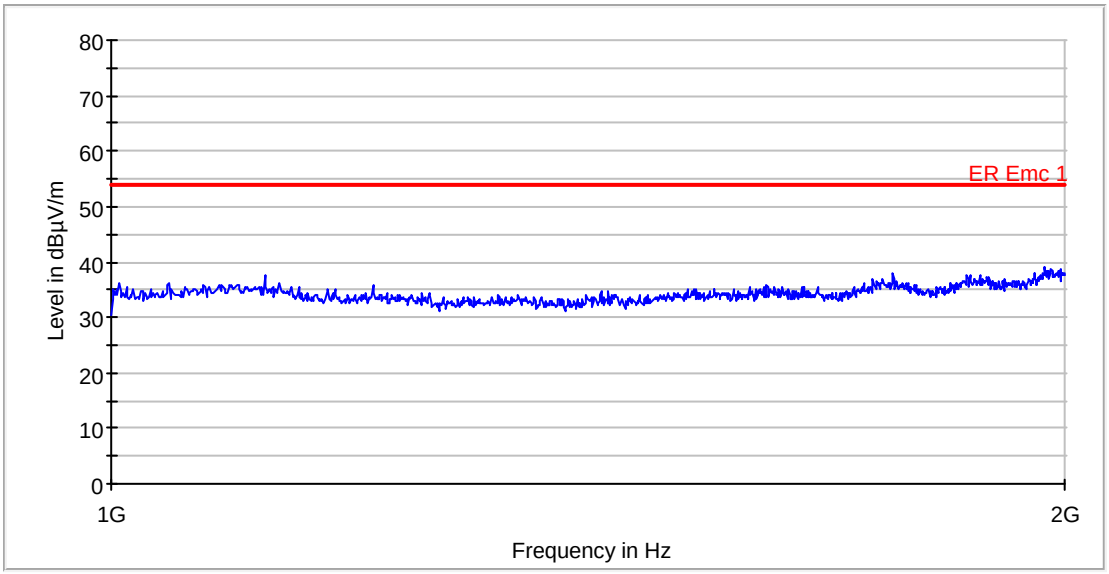
Data reduction Detector 1

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)
0.154000	57.0
0.246000	51.8
0.394000	48.7
0.598000	44.6
0.886000	40.1
1.370000	36.6
2.394000	34.1
4.738000	36.4
5.738000	31.7
8.770000	29.2
15.894000	25.3
20.006000	17.6

Emisión radiada: CR0101 1 GHz-2 GHz Polarización Horizontal

Proyecto:	28859CIEM.002
Empresa:	SCM Sistemas
Muestra:	M/01
Modo operacion:	MO#01
Fecha:	2009-01-28 17:40
Setup:	EMI radiated
Mode:	EBP ON. Orden activa. Polarización Horizontal.

ER CISPR 16-1 1-2GHz



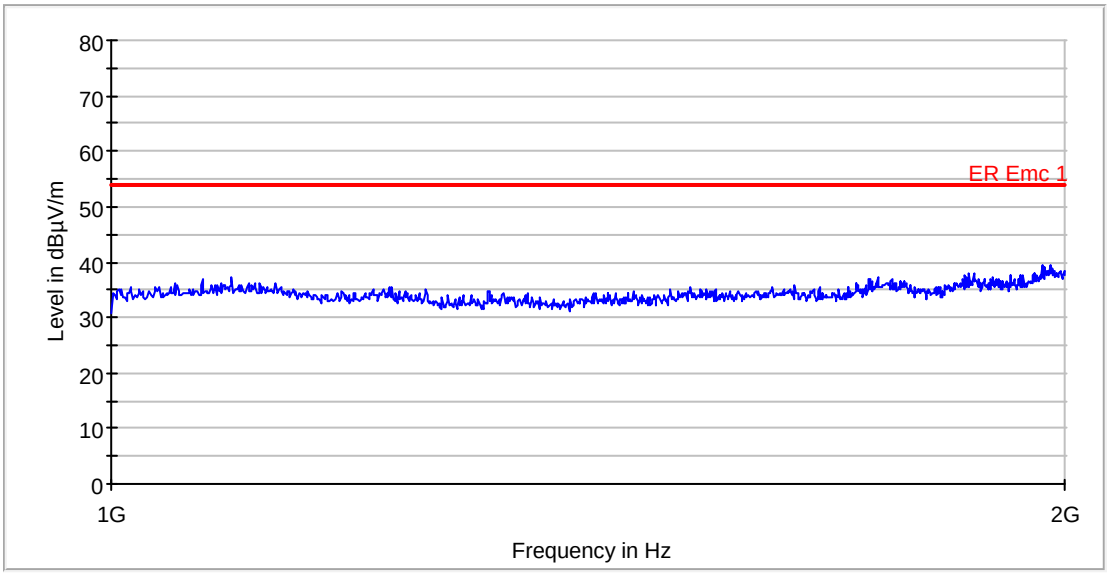
Subrange Maxima

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)
1118.000000	37.7
1210.000000	35.8
1436.000000	34.8
1611.000000	35.7
1765.000000	38.1
1971.000000	39.1

Emisión radiada: **CR0101 1 GHz-2 GHz Polarización Vertical**

Proyecto:	28859CIEM.002
Empresa:	SCM Sistemas
Muestra:	M/01
Modo operacion:	MO#01
Fecha:	2009-01-28 17:42
Setup:	EMI radiated
Mode:	EBP ON. Orden activa. Polarización Vertical.

ER CISPR 16-1 1-2GHz



Subrange Maxima

Frequency (MHz)	MaxPeak-ClearWrite (dBµV/m)
1092.000000	37.3
1227.000000	35.5
1462.000000	34.6
1644.000000	35.7
1746.000000	37.4
1967.000000	39.6

INMUNIDAD RADIADA FRENTE A CAMPOS DE RF

LÍMITES:	Norma producto :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Norma ensayo :	EN 61000-4-3 (2006)

Nivel de severidad	3
Rango de frecuencias (A)	80 MHz a 2 GHz
Paso del barrido	< 1,5 x 10^{-3} dec/s (1% / 3s)
Intensidad del campo	10 V/m
Modulación	AM 80 % 1000 Hz Senoidal
Polarización	Vertical y Horizontal

MUESTRAS ENSAYADAS :	M/01
MODOS DE OPERACIÓN ENSAYADOS :	MO#01
CRITERIO DE FALLO Y MONITORIZACIÓN :	A
ZONAS/CABLES DE ACOPLO (ACPL):	

ACPL	DESCRIPCIÓN
1	Frontal del EBP
2	Zona trasera del EBP
3	Lateral derecho del equipo
4	Lateral izquierdo del equipo

RESULTADOS DEL ENSAYO :	

ACPL	RANGO	M/	MO#	COMENTARIOS	RESULTADO
1	A	01	01	Ok, sin anomalías.	C
2	A	01	01	Ok, sin anomalías.	C
3	A	01	01	Ok, sin anomalías.	C
4	A	01	01	Ok, sin anomalías.	C

INMUNIDAD CONDUCIDA A ALTA FRECUENCIA

LÍMITES:	Norma producto :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Norma ensayo :	EN 61000-4-6 (2007)

Nivel de severidad	2
Acoplo	Línea / Tierra
Portadora (Circuito abierto)	3 V_{eff}[1]
Rango A	150 kHz – 5 MHz
Rango B	5 MHz – 80 MHz
Rango C	2 MHz, 3 MHz, 4 MHz, 6,2 MHz, 8,2 MHz, 12,6 MHz, 16,5 MHz, 18,8 MHz, 22 MHz y 25 MHz.
Rango D	50 Hz – 10 KHz
Modulación	AM 80% a 1000 Hz Senoidal[2]
Velocidad barrido	< 1,5 x 10^{-3} dec/s (1% / 3s)

[1] Para equipos instalados en la cubierta del puente y zona de cubierta los niveles de ensayos deben ser incrementados a 10 V_{eff} para frecuencias aleatorias conformes con IEC 60945 en 2 MHz, 3 MHz, 4 MHz, 6,2 MHz, 8,2 MHz, 12,6 MHz, 16,5 MHz, 18,8 MHz, 22 MHz y 25 MHz.

[2] Para ensayos de equipos y señales de entrada con una frecuencia de modulación de 1000 Hz es necesario elegir una frecuencia de modulación de 400 Hz

MUESTRAS ENSAYADAS :	M/01 & 13
MODOS DE OPERACIÓN ENSAYADOS :	MO#01
CRITERIO DE FALLO Y MONITORIZACIÓN :	A
ZONAS/CABLES DE ACOPLO (ACPL):	

ACPL	DESCRIPCIÓN
1	Interface 1
2	Interface 2
3	Interface 3
4	Interface 4
5	Interface 5
6	Interface 6
7	Interface 8
8	Entrada de alimentación DC

RESULTADOS DEL ENSAYO :	(Ver en página siguiente)

ACPL	RANGO	M/	MO#	COMENTARIOS	RESULTADO
1	A; B; C	01	01	Ok, sin anomalías.	C
2	A; B; C	01	01	Ok, sin anomalías.	C
3	A; B; C	01	01	Ok, sin anomalías.	C
4	A; B; C	01	01	Ok, sin anomalías.	C
5	A; B; C	01	01	Ok, sin anomalías.	C
6	A; B; C	07	01	Ok, sin anomalías.	C
7	A; B; C	01	01	Ok, sin anomalías.	C
8	A; B; C	13	01	Ok, sin anomalías.	C

INMUNIDAD FRENTE A TRANSITORIOS RÁPIDOS / RÁFAGAS

LÍMITES:	Norma producto :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Norma ensayo :	EN 61000-4-4 (2004)

	Conexiones de alimentación (Tipo 1)	**Conexiones de datos, control y comunicaciones (Tipo 2)**
Nivel de severidad	3	
Acoplo	linea / tierra	
Tensión de ensayo (Circuito abierto)	2 kV	1 kV
Polaridad	positivo / negativo	
Tasa de repetición de pulsos	5 kHz	5 kHz
Forma de onda de la tensión	5 / 50 ns	
Duration	15 ms	
Periodo	300 ms	
Duración del test por polaridad y punto de test	5 Minutos	

MUESTRAS ENSAYADAS :	M/12
MODOS DE OPERACIÓN ENSAYADOS :	MO#01
CRITERIO DE FALLO Y MONITORIZACIÓN :	B
ZONAS/CABLES DE ACOPLO (ACPL):	

ACPL	**DESCRIPCIÓN**	**TIPO**
A	Alimentación DC. Hilo Positivo	1
B	Alimentación DC. Hilo Negativo	1
C	Línea de comunicación entre módulos	2
D	Línea de salida a relés	2

RESULTADOS DEL ENSAYO :	(Ver en página siguiente)

ACPL	M/	MO#	COMENTARIOS	RESULTADO
A	12	01	Ok, sin anomalías.	C
B	12	01	Ok, sin anomalías.	C
C	12	01	Ok, sin anomalías.	C
D	12	01	Ok, sin anomalías.	C

INMUNIDAD FRENTE A TRANSITORIOS DE ALTA ENERGÍA

LÍMITES:	Norma producto :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Norma ensayo :	EN 61000-4-5 (2006)

	Acoplo	
	linea / linea (Tipo 1)	linea / tierra (Tipo 2)
Nivel de severidad	2	
Tensión de ensayo (Circuito abierto)	0,5 kV	1 kV
Polaridad	positivo / negativo	
Forma de onda de la tensión	1,2 / 50 µs	
Tasa de repetición	max. 1 pulso / minuto	
Duración del ensayo por punto de test.	min. 5 pulsos / Polaridad	

MUESTRAS ENSAYADAS :	M/12
MODOS DE OPERACIÓN ENSAYADOS :	MO#01
CRITERIO DE FALLO Y MONITORIZACIÓN :	B
ZONAS/CABLES DE ACOPLO (ACPL):	

ACPL	**DESCRIPCIÓN**	**TIPO**
A	Línea de alimentación DC. Simétrico: PO→NE	1
B	Línea de alimentación DC. Asimétrico: PO →PE.	2
C	Línea de alimentación DC. Asimétrico: NE →PE.	2

RESULTADOS DEL ENSAYO :	

ACPL	**M/**	**MO#**	**COMENTARIOS**	**RESULTADO**
A	12	01	Ok, sin anomalías	C
B	12	01	Ok, sin anomalías	C
C	12	01	Ok, sin anomalías	C

INMUNIDAD FRENTE A DESCARGAS ELECTROSTÁTICAS.

LÍMITES:	Norma producto :	Germanischer Lloyd Edition 2003 Rules for Classification and Construction VI Additional Rules Guidelines 7 Guidelines for the Performance of Type Approvals 2 Test Requirements for Electrical / Electronic Equipment and Systems
	Norma ensayo :	EN 61000-4-2 (1995) / A1 (1998) / A2 (2001)

	Descargas por contacto	**Descargas por aire**
Nivel de severidad	3	
Voltage de ensayos	6 kV	8 kV
Duración por punto de ensayo	min. 10 descargas individuales por polaridad	
Tiempo entre descargas individuales	min. 1 segundo	
Parámetros de la forma de onda Primer pico de corriente de la descarga - Tiempo de subida - Corriente en 30 ns - Corriente en 60 ns	 22,5 A 0,7 a 1 ns 12A 6 A	

MUESTRAS ENSAYADAS :	M/12
MODOS DE OPERACIÓN ENSAYADOS :	MO#01
CRITERIO DE FALLO Y MONITORIZACIÓN :	B
NÚMERO DE DESCARGAS POR PUNTO	10
ZONAS/CABLES DE ACOPLO (ACPL):	

ACPL	**DESCRIPCIÓN**	**TIPO DE ACOPLO**			
		ICH	**ICV**	**DC**	**DA**
1	Frontal del EBP (Elemento 1)	**X**			
2	Lateral derecho del EBP (Elemento 1)	**X**			
3	Lateral izquierdo del EBP (Elemento 1)	**X**			
4	Frontal del EBP (Elemento 22)	**X**			
5	Frontal del EBP (Elemento 23)	**X**			
6	Tornillos de la sirena (Elemento 01)			**X**	

7	Selector del panel de control (Elemento 01)				**X**
8	Panel de control (Elemento 01)				**X**
9	Alarma luminosa (Elemento 01)				**X**
10	Alarma acústica (Elemento 01)				**X**
11	Panel de control (Elemento 22)				**X**
12	Selector del panel de control (Elemento 22)				**X**
13	Panel de control (Elemento 23)				**X**
14	Selector (Elemento 23)				**X**

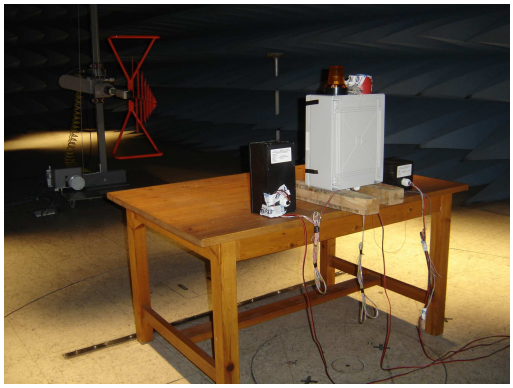
RESUMEN ACOPLOS : ICH (Indirecta por contacto sobre plano horizontal)

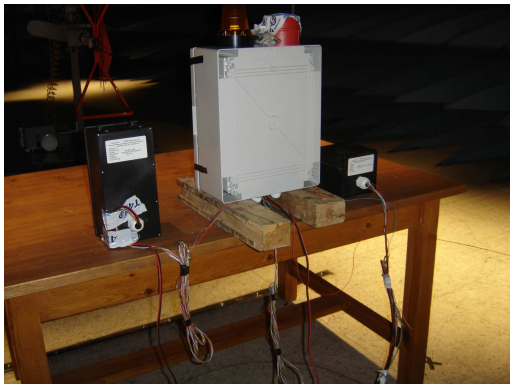
ICV (Indirecta por contacto sobre plano vertical), DC (directa por contacto), DA (directa por aire)

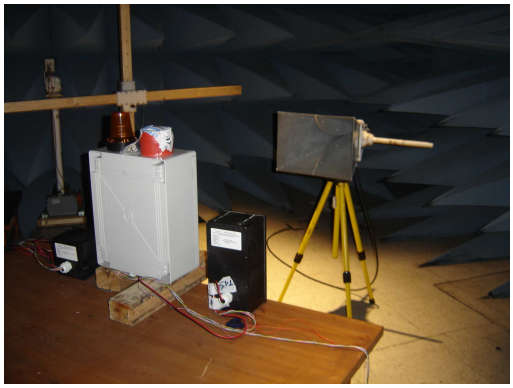
RESULTADOS DEL ENSAYO :

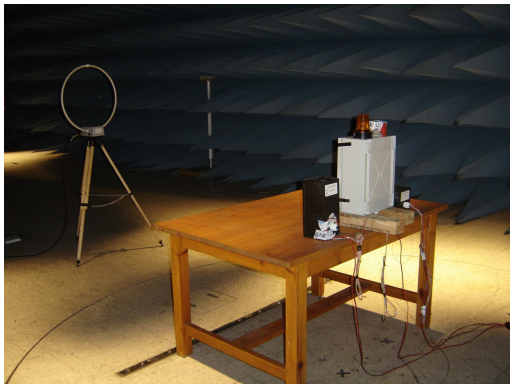
ACPL	M/	MO#	COMENTARIOS	RESULTADO
1	12	01	Ok, sin anomalías	C
2	12	01	Ok, sin anomalías	C
3	12	01	Ok, sin anomalías	C
4	12	01	Ok, sin anomalías	C
5	12	01	Ok, sin anomalías	C
6	12	01	Ok, sin anomalías	C
7	12	01	Ok, sin anomalías	C
8	12	01	Ok, sin anomalías	C
9	12	01	Ok, sin anomalías	C
10	12	01	Ok, sin anomalías	C
11	12	01	Ok, sin anomalías	C
12	12	01	Ok, sin anomalías	C
13	12	01	Ok, sin anomalías	C
14	12	01	Ok, sin anomalías	C

APÉNDICE B: Fotografías









CERTIFICADO DE ENSAYO

TEST CERTIFICATE

Nº: 28859CEA.002

Producto **Product**	:	**SISTEMA DE TELEGRAFOS DE ORDENES A MAQUINAS TIPO 2L** **ENGINE ORDER TELEGRAPH SYSTEM TYPE 2L**
Marca comercial **Trade Mark**	:	**SCM SISTEMAS, S.L.**
Modelo /Tipo Ref. **Model / Type Ref.**	:	**SISTEMA DE TELEGRAFOS DE ORDENES A MAQUINAS TIPO 2L** **ENGINE ORDER TELEGRAPH SYSTEM TYPE 2L**
Fabricante **Manufacturer**	:	**SCM SISTEMAS, S.L.**
Peticionario **Tested on request of**	:	**SCM SISTEMAS, S.L.**
Otros datos de identificación - n/s **Full identification of the product - s/n**	:	**Telégrafo modelo SC-12-2L; Telégrafo modelo TLB-32-2L; Telégrafo modelo SC-14-CJ-2L.** **Telegraph model SC-14-2L; Telegraph model TLB-32-2L; Telegraph model SC-14-CJ-2L.**
Norma(s) de referencia **Standard(s)**	:	**- Germanischer Lloyd. Rules for Classification and Construction. Additional Rules and Guidelines (2003) (partial)** **- IEC 60068-2-1:2007 Environmental testing – Part 2: Tests. Test A: Cold.** **- IEC 60068-2-2:2007 Environmental testing – Part 2: Tests. Test B: Dry Heat.** **- IEC 60068-2-6: 1995 Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal).** **- IEC 60068-2-30:2006 Environmental testing – Part 2: Tests. Test Db: Damp Heat Cyclic.** **- IEC 60068-2-52:1996 Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic.**
Certificado basado en el informe **Test certificate based on the test report**	:	**Nº. 28859REA.002 de fecha / dated on: 2010-10-07**
Resultado **Summary**	:	**CONFORME** **COMPLIANT**

AT4 wireless es un laboratorio de ensayo competente para la realización de los ensayos objeto del presente informe.
AT4 wireless is a testing laboratory competent to carry out the tests described in the report.

Nota: Este certificado de ensayo sólo es aplicable a los objetos sometidos a ensayo cuya identificación se recoge en el informe en que se basa, ensayados en el modo y fecha(s) declaradas del mismo informe. Por tanto, no implica una certificación de la producción.
Note: This test certificate is only applicable to the unit(s) of the product submitted, shown in the reference report, tested and used in the mode and date shown in the mentioned test report. It does not imply a certification of the production..

Málaga,

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